

**STUDENT**

**WorkSafe™**

WORKERS' COMPENSATION BOARD OF BC

**PROGRAM**



**Planning 10**



**S T U D E N T**

**WorkSafe™**

WORKERS' COMPENSATION BOARD OF BC

**P R O G R A M**



**P l a n n i n g 10**

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### Teaching Safety, in the Truest Sense of the Word

Teaching workplace health and safety is a key part of our continuing commitment to protecting young workers 15 to 24 years old. These young workers are particularly prone to on-the-job accidents—accidents that can sometimes result in life-long disabilities and, in some cases, even fatalities.

Since 1990, educators have been our partners in the process of developing and delivering programs to address the unique needs of this most vulnerable group of workers. With your help and your ability to implement WCB educational initiatives, we have been able to make great strides with health and safety education in our schools. Yet there is still more that needs to be done.

With this in mind, we are renewing our efforts to prepare students for work experience placements by supporting the development of knowledge, skills, and attitudes related to workplace health and safety. That's where you and the newly revised *Student WorkSafe Planning 10* resource come in. It is specifically designed for use by educators in British Columbia's secondary schools, where more than half the students have part-time or summer jobs.

Addressing young worker safety through diverse, multi-level programs requires the collaboration of all of us. *Student WorkSafe Planning 10* is one of many resources the WCB offers teachers, young workers, their parents, employers, unions and community agencies.

The WCB's commitment to making the province's workplaces safer for our young people is fundamental to our mandate, and *Student WorkSafe Planning 10* gives us one of the best tools with which to teach our young people workplace safety—in the truest sense of the word.

Thanks for helping make B.C.'s workplaces safer and healthier for young workers.

David Anderson, Chief Executive Officer  
Workers' Compensation Board of B.C.

### ***Student WorkSafe Meets a Demonstrated Need***

British Columbia's youth are at risk—not just from drugs, crime, and poverty, but from the very real threat of workplace injury.

Last year in B.C., one young person was injured on the job every 40 minutes. That same year, five young workers were permanently disabled each week. Nine died on the job.

Although on-the-job safety education is clearly in their best interests, few young people (at least initially) give the matter much thought. They have told us this, in surveys, focus groups, and one-on-one interviews. That's the bad news. The good news is that when young people are given job-related safety education and training, they “get it”—and they apply it in the workplace. As national research has shown, educating young workers in this way provides a big payback in injury reduction and saved lives.

To give young people a good, safe start in their working lives, we need to take advantage of the settings where they are already engaged. We need to reach them in the classroom before they start their working career.

### **Building Confidence**

Workplace safety education introduces young people to the consequences of ignoring safety training. It alerts students to the risks they're likely to encounter at work and launches the process of on-the-job hazard recognition. It fosters receptivity to site- and job-specific safety training and familiarizes them with their rights and responsibilities as workers. Good safety training also helps young people build the confidence to ask questions and stand up for their rights.

When it comes to teaching young workers about workplace health and safety, educators can rely on *Student WorkSafe Planning 10*. This updated WCB program is recommended by the B.C. Ministry of Education as a resource for the Planning 10 course. It also meets ministry requirements for in-school safety education before work placements for the new Grade 12 work experience elective.

*Student WorkSafe* would not have been possible without the involvement and support of more than 75 stakeholder representatives—from industry, organized labour, and government, to educators, parents, and youth and community groups. They not only provided input on development, but also supported a WCB submission to the Ministry of Education that called for strengthening workplace health and safety in the new curriculum.

### **We've Come a Long Way**

Our first young worker safety initiative, launched in 1990, consisted of brief presentations to secondary school students by WCB officers. Recognizing the need for a more structured approach, we then went on to develop the award-winning *Student WorkSafe* education programs for students from Kindergarten through Grade 12. We also began the annual public awareness campaigns that continue today, coinciding with the summer job season.



The programs have continued to evolve and today our initiatives address a broad range of audiences with interests in young worker safety:

- **Parents**, for whom we provide information and materials related to youth injury prevention
- **Young people**, for whom we produce videos, targeted publications, and other resources
- **Educators**, for whom we provide *Student WorkSafe* modules for different grades, publish safety information bulletins, and offer other resources
- **Business and labour personnel**, with whom we collaborate in developing young worker safety information, training, and prevention

And it doesn't stop there. Other WCB initiatives include helping local groups foster public awareness of young worker health and safety issues, and training injured young workers, parents, and others to make community presentations related to these matters.

### **The Journey Continues**

The commitment to young worker safety by stakeholders and the WCB has been productive. Today's injury rate for youth is only 60% of what it was a decade ago. That's a vast improvement—but it's not good enough. Much remains to be done. Today in British Columbia, young workers are still more likely than any other group to be hurt on the job. That is simply unacceptable.

So, in the coming weeks, months, and years, the WCB will continue to expand its efforts to reach young people entering the workforce. As before, we will provide a variety of resources to teachers and work with them to better prepare young people for safe working lives. Here's a sample of some of the new support that teachers can expect from our cross-curricular approach:

- For personal planning teachers, we are revising the existing *Student WorkSafe* program (Kindergarten through Grade 9) in response to upcoming Ministry of Education curriculum changes.
- For teachers of the new Work Experience 12 elective, we are creating student-focused resources.
- For drama teachers, we are developing a teacher's guide for *Joe Who?*, a WCB video about a play written in British Columbia by students for students.
- For technology education teachers, we are planning the development of resources to support grade 12 courses and any upcoming changes to the curriculum.
- For career educators and others, we will be presenting a series of WCB-sponsored Planning 10 implementation workshops, in partnership with the Career Education Society.
- For all teachers, we are identifying opportunities to focus on young worker health and safety across the curriculum.

To monitor these developments and explore complementary initiatives, visit the WCB's website dedicated to young worker safety:

<http://youngworker.healthandsafetycentre.org>.

We welcome your interest, feedback, and support.

## Introduction to Student WorkSafe

Young workers have more injuries than any other worker age group in British Columbia.

- More than 50 percent of work-related accidents happen during a young worker's first six months on the job.
- On average, 34 young workers are injured every working day.
- On average, five young workers are permanently disabled each week.

Hardest hit are young male workers. They are 70 percent more likely to be injured on the job than any other group of workers.

The Workers' Compensation Board of British Columbia (WCB) is committed to reducing the number of injuries and fatalities among young workers in the province. *Student WorkSafe* is an integral component of the WCB's strategy to create and achieve long-term reductions in occupational injuries and disease.

*Student WorkSafe* focuses on principles of hazard recognition in the workplace, helping students develop the skills they need to recognize, evaluate, and control hazards. With this training, they can make informed choices about the prevention of injury to themselves and others in the workplace.

Hazard recognition skills, however, are not enough. Students also need confidence to put their knowledge into action. This program is designed to strengthen students' self-confidence and decision-making skills so that they will be able to apply their health and safety knowledge and skills, and make the decision to practise safe actions even when peers or supervisors may not.

### What's New in Student WorkSafe?

*Student WorkSafe* has been significantly revised to directly address the new *Planning 10* curriculum. Relevant materials from *Student WorkSafe* 10, 11, and 12 have been combined to address the Ministry of Education's new policy on Work Experience Requirements for Graduation and Workplace Safety.

Updated materials include:

- A direct correlation of lesson plans to learning outcomes and achievement indicators from *Planning 10*
- A greater variety of instructional strategies (e.g., case methodology, video-based)
- Criteria-referenced assessment tools
- A Completion Test
- A Certificate of Completion
- A new module on occupational health
- Reference to the video, *Lost Youth* (a BC Ministry of Education Recommended Resource)
- Links to WCB website content (e.g., industry profiles, WorkSafe Speakers Network, injury prevention resources)
- The latest information on dangers to young workers and risk-reduction strategies

## Using This Resource

This resource includes six lesson plans, each designed to correspond to one or more prescribed learning outcome from the provincially prescribed *Planning 10* curriculum (a required Graduation Program course for all British Columbia students). These six lesson plans are summarized below.

Lesson	Overview	Methodology	Prescribed Learning Outcomes
1. Lost Youth	Introduction to young workers' risks of being injured on the job	<ul style="list-style-type: none"> <li>• Video</li> <li>• Quiz</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate an awareness of the legal rights and responsibilities of employers and employees</li> </ul>
2. Rights, Responsibilities, and a Safer Workplace	Workplace rights and responsibilities of both employers and workers	<ul style="list-style-type: none"> <li>• Class discussion</li> <li>• Group work</li> <li>• Role play</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate an awareness of the legal rights and responsibilities of employers and employees</li> <li>• Analyse practices associated with work-related risk reduction and injury prevention</li> </ul>
3. Major Causes of Workplace Injury	Most common causes of workplace injury	<ul style="list-style-type: none"> <li>• Brainstorming</li> <li>• Research</li> </ul>	<ul style="list-style-type: none"> <li>• Analyse practices associated with work-related risk reduction and injury prevention</li> </ul>
4. Hazard Recognition	Recognizing potentially hazardous workplace situations	<ul style="list-style-type: none"> <li>• Direct instruction</li> <li>• Group work</li> <li>• Key visuals</li> <li>• Independent study</li> </ul>	<ul style="list-style-type: none"> <li>• Analyse practices associated with work-related risk reduction and injury prevention</li> </ul>
5. Personal Protective Equipment	Safety equipment used to minimize injuries and exposure to hazards	<ul style="list-style-type: none"> <li>• Direct instruction</li> <li>• Group work</li> <li>• Key visuals</li> <li>• Independent study</li> </ul>	<ul style="list-style-type: none"> <li>• Analyse practices associated with work-related risk reduction and injury prevention</li> </ul>
6. Occupational Health	Potential occupational health risks (e.g., blood-borne diseases, mineral and chemical exposure, noise, sun, musculoskeletal injuries)	<ul style="list-style-type: none"> <li>• Group work</li> <li>• Information analysis</li> </ul>	<ul style="list-style-type: none"> <li>• Analyse practices associated with work-related risk reduction and injury prevention</li> <li>• Analyse factors that influence health</li> <li>• Analyse health information for validity and personal relevance</li> <li>• Evaluate the potential effects of an individual's health-related decisions on self, family, and community</li> </ul>

The lessons provided in this resource require little or no preparation time on the part of the teacher, and this resource contains all the materials necessary to teach the lessons (including video,\* key visuals, and student handouts).

\* The video is available from the WCB young worker section free of charge to secondary schools in British Columbia.

Although the six lessons complement each other and can be followed sequentially to deliver a complete unit on workplace safety, they can also be reordered and adapted to address a variety of classroom needs. Indeed, because some of the same learning outcomes are addressed in more than one lesson, teachers may choose to schedule the lessons at various points during the school year to support ongoing affective learning and skill development.

In addition, teachers can look for opportunities to schedule *Student WorkSafe Planning 10* lessons relative to lessons that address other Planning 10 topics, allowing students to draw additional personal connections. For example, *Student WorkSafe Planning 10* lessons can support the following topics from the curriculum guide:

- Labour market information (e.g., helping students consider workplace safety factors in careers of interest)
- Employability skills (e.g., helping students communicate assertively with employers and co-workers about their rights and responsibilities)
- Health information analysis (e.g., helping students analyse information related to workplace health and safety issues).

## Assessment and Evaluation

Two forms of assessment and evaluation are provided in *Student WorkSafe Planning 10*:

1. **Criteria-referenced assessment tools** (Assessment for Learning). Each lesson contains at least one assessment tool that provides opportunities for both student self-assessment and teacher assessment. Criteria are based on prescribed learning outcomes, as well as on suggested achievement indicators.
2. **Completion Test** (Assessment of Learning). A 50-mark test provides a summative means of assessing student achievement across the entire *Student WorkSafe Planning 10* program. This test is made up of questions drawn directly from each of the six lessons. An answer key is also provided. Copies of the Completion Test and Answer Key can be obtained from the WCB young worker website.

## Certificate of Completion

The WCB has created a Certificate of Completion to acknowledge students who successfully complete all six lessons in *Student WorkSafe Planning 10*. Teachers can obtain copies of this certificate from the WCB young worker website and customize it for each successful student.

## Obtaining Copies of the Resource

There are a variety of ways in which teachers and schools can obtain *Student WorkSafe Planning 10* materials:

- Download the complete online version website free of charge at <http://youngworker.healthandsafetycentre.org/s/Resources-Educators.asp>.
- Obtain a complete CD-ROM version of materials along with the *Lost Youth* video from the WCB **free of charge** by e-mail at [yworker@wcb.bc.ca](mailto:yworker@wcb.bc.ca), by phone at 604 231-8578 or toll-free at 1 888 621-7233 (local 8578), or by fax 604 207-1478.
- Purchase a complete hard copy of *Student WorkSafe Planning 10* materials from Government Publications (Queen's Printer) on line at [www.publications.gov.bc.ca](http://www.publications.gov.bc.ca) or by phone at 1 250 387-6409 or toll-free at 1 800 663-6105.
- Purchase Open Schools B.C.'s *Planning 10: Writing Your Own Ticket* (Ground Work module), which contains the first three lessons from *Student WorkSafe Planning 10* from Government Publications (Queen's Printer) on line at [www.publications.gov.bc.ca](http://www.publications.gov.bc.ca) or by phone at 1 250 387-6409 or toll-free at 1 800 663-6105.

## F e e d b a c k

An evaluation form has been included for your input. Please print and complete this evaluation form each time you use the materials. WCB reviews all evaluation forms carefully, and considers suggestions in future revisions of the materials. Continued input from classroom teachers will keep these materials relevant and effective.

### Student WorkSafe Planning 10 Evaluation Form

#### Teachers:

After using this material, please provide us with feedback by completing the following questionnaire and returning it to us by fax or mail (addresses are given on the next page). The information you provide will assist us in revising this and future materials for the WCB *Student WorkSafe* program.

Your name	
School information ( <i>name, district, address, phone</i> )	
Your e-mail address	Number of students with whom you used this resource
<b>Lesson 1: Lost Youth</b>  Comments:	Lesson used?  <input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Lesson 2: Rights, Responsibilities, and a Safer Workplace</b>  Comments:	Lesson used?  <input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Lesson 3: Major Causes of Workplace Injury</b>  Comments:	Lesson used?  <input type="checkbox"/> Yes <input type="checkbox"/> No

**Feedback**  
continued

<b>Lesson 4: Hazard Recognition</b>  Comments:	Lesson used?  <input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Lesson 5: Personal Protective Equipment</b>  Comments:	Lesson used?  <input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Lesson 6: Occupational Health</b>  Comments:	Lesson used?  <input type="checkbox"/> Yes <input type="checkbox"/> No
Please add any further comments you have here	

*Thank you.*

Please send this completed evaluation form to the WCB by:

- Fax at 604 207-1478 or
- Regular mail, addressed to the  
WCB Young Worker Program  
PO Box 5350 Stn Terminal  
Vancouver BC V6B 5L5



## Purpose

In this lesson, students learn that young workers are at high risk of being injured on the job. Students also learn that young workers, like all workers, have a right to a safe and healthy workplace.

## British Columbia Planning 10 Curriculum Connection

Prescribed Learning Outcomes	Suggested Achievement Indicators
<i>It is expected that students will:</i>	<i>Students who have fully met the prescribed learning outcome are able to:</i>
<ul style="list-style-type: none"><li>Demonstrate an awareness of the legal rights and responsibilities of employers and employees</li></ul>	<ul style="list-style-type: none"><li>Accurately identify the legal rights and responsibilities of employees</li><li>Accurately identify where information related to the legal rights and responsibilities of employers and employees can be found (e.g., employment centres, school or community career centres, Workers' Compensation Board, public library)</li></ul>

## Teaching Strategies

- Video-based learning
- Quiz

## Suggested Time

- 1 hour

## Materials and Resources

- Video, *Lost Youth* (17 minutes) or *Lost Youth* (language-edited version) (17 minutes)
- Student Handout 1: Video Quiz*
- Student Handout 2: Video Quiz Answer Key*

## Assessment Strategies

- Assessment Tool 1: Youth and Workplace Injuries*

## Preparation

- Preview the video before showing it to students. The video contains strong language and graphic scenes that may be disturbing for some students. A language-edited version of the video, in which the profanity has been deleted, is also available. You may prefer to show this version to the students.
- Print copies of the student handouts and teacher resources and review them before teaching the lesson.

1. **Introduce** the subject by asking students if they or someone they know has ever been injured in a workplace accident. Have them suggest different types of injuries that could occur in the workplace. Responses could include:

- Sprains and strains
- Cuts
- Broken bones
- Loss of limbs
- Crushing injuries
- Internal organ damage
- Eye injuries

2. **Ask** students to suggest some of the consequences of a workplace injury. Responses could include:

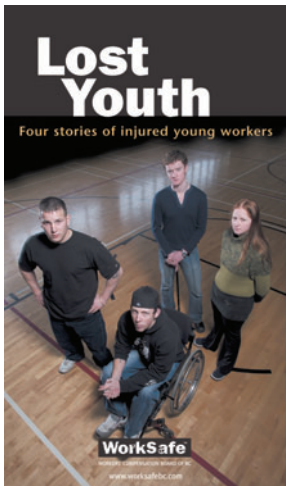
- Short- and long-term disability
- Disfigurement
- Dismemberment
- Death

3. **Inform** students that young workers are at high risk of being injured on the job, and that they, like all workers, have the right to a safe and healthy workplace. Share the following facts with them:

- Young workers are at the greatest risk of getting injured during their first six months on the job.
- Young men are more likely to be injured on the job than any other group of workers.

For more information on workplace injuries sustained by youth, visit the young worker site: <http://youngworker.healthandsafetycentre.org/s/Home.asp>

4. **Prepare** students for viewing the video, *Lost Youth*. Inform them that the video features the true stories of four injured young workers whose lives have been permanently changed by their workplace accidents. Michael, Jennifer, John, and Nick talk emotionally about learning to live with the aftermath of their accidents. Their parents also speak about their children's shattered bodies and dreams. Remind students that while the accident scenes are re-creations and not real, the young people, their parents, and their stories are real. You may want to suggest that if students are upset by the reality of the video, they can look away during the accident scenes (which come toward the end of the video) or leave the room.



# LESSON 1: Lost Youth

## Instructional Plan continued

5. **Distribute** *Student Handout 1: Video Quiz* after the video has finished. Ask students to complete the quiz. When they have finished, distribute *Student Handout 2: Video Quiz Answer Key*. Review each question with the class and address any questions that might arise.
6. **Debrief** this lesson by asking students the following questions:

- What are some of the reasons Michael, Jennifer, John, and Nick were injured at work?
- What safety messages and other issues were conveyed in the video?
- What role does the employer play in keeping workers safe at work?
- What role does the worker play in keeping himself or herself safe at work?

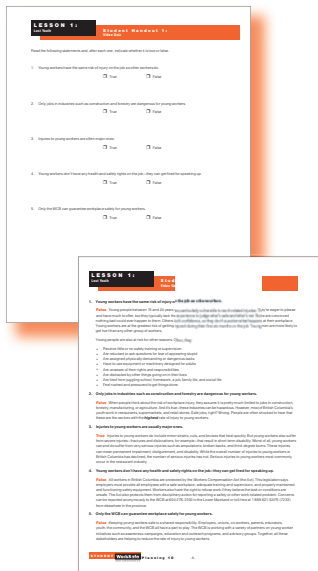
7. **Inform** students that:

- More than 50 percent of work-related accidents happen during a young worker's first six months on the job.
- Males under 25 are much more likely to be injured on the job than any other workers.
- Each day in B.C., 34 young workers are hurt on the job, or one every 42 minutes.
- Every week, five of these young workers are permanently disabled in workplace accidents.
- In 2003, nine young workers were killed in work-related accidents.

To keep safe on the job, youth can do the following:

- Ask to be trained about safe work procedures and how to recognize on-the-job hazards.
- Follow safe procedures and encourage others to do so.
- Know their workplace health and safety rights and responsibilities.
- Ask questions if they are uncertain about anything.
- Get involved and support young worker health and safety programs.

8. **Remind** students that **workplace safety is both a right and a responsibility**. Let them know that they can find information and help concerning young worker safety on the WCB website (<http://youngworker.healthandsafetycentre.org>)—a site dedicated to the safety of young workers. It includes a broad range of information, as well as resource materials that can be downloaded for free. The WCB Information Line is also available: 604 276-3100 in the Lower Mainland or 1 888 621-SAFE (7233), toll-free, from elsewhere in the province. Students can phone in with questions about workplace health and safety or to report a concern anonymously.

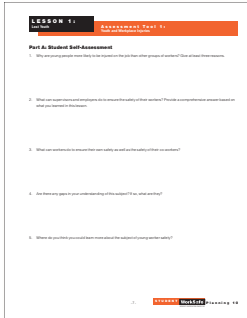


# LESSON 1:

## Lost Youth

## Instructional Plan

continued



### Assessment

- Instruct students to put their handouts away. Distribute *Assessment Tool 1: Youth and Workplace Injuries* and have students complete Part A. Collect these self-assessments and, in Part B, record your assessment of each student's work in this lesson.

### Extensions

- Have students research the Day of Mourning, April 28th, which annually recognizes those workers who have been killed on the job ([http://www.worksafebc.com/news/campaigns/day\\_of\\_mourning/default.asp](http://www.worksafebc.com/news/campaigns/day_of_mourning/default.asp)). Then have them select one way of honouring the memory of those who have lost their lives in the workplace by:
  - Creating a poster
  - Developing a 30-second public service announcement
  - Inviting a speaker from the WCB **WorkSafe Speakers Network** (<http://youngworker.healthandsafetycentre.org/s/Resources-Speakers.asp>)
  - Showing an appropriate video, such as *Lost Youth*
  - Sharing a moment of silence in the classroom
- Ask students to work in groups to prepare short skits illustrating the importance of workplace safety. Have groups present their skits to the class. Discuss. You may want to have the student groups present their skits to younger grades as well.



Read the following statements and, after each one, indicate whether it is true or false.

1. Young workers have the same risk of injury on the job as other workers do.

☐ True

☐ False

2. Only jobs in industries such as construction and forestry are dangerous for young workers.

☐ True

☐ False

3. Injuries to young workers are often major ones.

☐ True

☐ False

4. Young workers don't have any health and safety rights on the job—they can get fired for speaking up.

☐ True

☐ False

5. Only the WCB can guarantee workplace safety for young workers.

☐ True

☐ False

**1. Young workers have the same risk of injury on the job as other workers.**

**False** Young people between 15 and 24 years are particularly vulnerable to work-related injuries. They're eager to please and have much to offer, but they typically lack the experience to judge what's safe and what's not. Some are convinced nothing bad could ever happen to them. Others lack confidence, so they don't question what happens at their workplace. Young workers are at the greatest risk of getting injured during their first six months on the job. Young men are more likely to get hurt than any other group of workers.

Young people are also at risk for other reasons. Often, they:

- Receive little or no safety training or supervision
- Are reluctant to ask questions for fear of appearing stupid
- Are assigned physically demanding or dangerous tasks
- Have to use equipment or machinery designed for adults
- Are unaware of their rights and responsibilities
- Are distracted by other things going on in their lives
- Are tired from juggling school, homework, a job, family life, and social life
- Feel rushed and pressured to get things done

**2. Only jobs in industries such as construction and forestry are dangerous for young workers.**

**False** When people think about the risk of workplace injury, they assume it is pretty much limited to jobs in construction, forestry, manufacturing, or agriculture. And it's true—these industries can be hazardous. However, most of British Columbia's youth work in restaurants, supermarkets, and retail stores. Safe jobs, right? Wrong. People are often shocked to hear that these are the sectors with the **highest** rate of injury to young workers.

**3. Injuries to young workers are usually major ones.**

**True** Injuries to young workers do include minor strains, cuts, and bruises that heal quickly. But young workers also suffer from severe injuries—fractures and dislocations, for example—that result in short-term disability. Worst of all, young workers can and do suffer from very serious injuries such as amputations, broken backs, and third-degree burns. These injuries can mean permanent impairment, disfigurement, and disability. While the overall number of injuries to young workers in British Columbia has declined, the number of serious injuries has not. Serious injuries to young workers most commonly occur in the restaurant industry.

**4. Young workers don't have any health and safety rights on the job—they can get fired for speaking up.**

**False** All workers in British Columbia are protected by the *Workers Compensation Act* (the Act). This legislation says employers must provide all employees with a safe workplace, adequate training and supervision, and properly maintained and functioning safety equipment. Workers also have the right to refuse work if they believe the task or conditions are unsafe. The Act also protects them from disciplinary action for reporting a safety or other work-related problem. Concerns can be reported anonymously to the WCB at 604 276-3100 in the Lower Mainland or toll-free at 1 888 621-SAFE (7233) from elsewhere in the province.

**5. Only the WCB can guarantee workplace safety for young workers.**

**False** Keeping young workers safe is a shared responsibility. Employers, unions, co-workers, parents, educators, youth, the community, and the WCB all have a part to play. The WCB is working with a variety of partners on young worker initiatives such as awareness campaigns, education and outreach programs, and advisory groups. Together, all these stakeholders are helping to reduce the rate of injury to young workers.



## **Part A: Student Self-Assessment**

1. Why are young people more likely to be injured on the job than other groups of workers? Give at least three reasons.
2. What can supervisors and employers do to ensure the safety of their workers? Provide a comprehensive answer based on what you learned in this lesson.
3. What can workers do to ensure their own safety as well as the safety of their co-workers?
4. Are there any gaps in your understanding of this subject? If so, what are they?
5. Where do you think you could learn more about the subject of young worker safety?

## Part B: Teacher Assessment

Use the following scoring guide to assess student work during this lesson.

The student is able to:	Does not meet expectations	Meets expectations	Fully meets expectations	Exceeds expectations
Identify reasons why young workers are more likely to be injured on the job than other groups of workers	Student identifies no more than one reason	Student identifies some valid reasons, but also includes some that aren't valid	Student identifies most or all valid reasons	Student identifies and describes all valid reasons without prompting
Identify ways in which supervisors and employers can ensure the safety of their workers	Student is unable to identify any way in which supervisors and employers can ensure worker safety	Student identifies some obvious ways in which supervisors and employers can ensure worker safety	Student identifies most or all obvious ways in which supervisors and employers can ensure worker safety	Student identifies and describes all obvious ways in which supervisors and employers can ensure worker safety, and includes some less obvious ways as well
Identify ways in which workers can ensure their own safety and that of their co-workers	Student is not able to identify any way in which workers can ensure their own safety	Student identifies some obvious ways in which workers can ensure their own safety	Student identifies most or all obvious ways in which workers can ensure their own safety	Student identifies and describes all obvious ways in which workers can ensure their own safety, and includes some less obvious ways as well
Accurately assess the comprehensiveness of his or her own answers, identify gaps in his or her understanding of this subject, and identify where information to fill those gaps would be found	Student is unaware of gaps in own understanding and does not know where to find additional information	Student is somewhat aware of gaps in his or her own understanding, but doesn't know where to find additional information	Student is aware of gaps in his or her own understanding, and knows where to find additional information	Student is aware of minimal gaps in his or her own understanding, and provides a comprehensive list of where to find additional information

**Teacher's comments:**

## Purpose

In this lesson, students work in groups and participate in role plays to develop a greater understanding of the concept of “rights and responsibilities” for both employers and workers.

## British Columbia Planning 10 Curriculum Connections

Prescribed Learning Outcomes	Suggested Achievement Indicators
<i>It is expected that students will:</i>	<i>Students who have fully met the prescribed learning outcome are able to:</i>
<ul style="list-style-type: none"> <li>Demonstrate an awareness of the legal rights and responsibilities of employers and employees</li> </ul>	<ul style="list-style-type: none"> <li>Accurately identify the legal rights and responsibilities of employees</li> <li>Accurately identify where information related to the legal rights and responsibilities of employers and employees can be found (e.g., employment centres, school or community career centres, Workers' Compensation Board, public library)</li> </ul>
<ul style="list-style-type: none"> <li>Analyse practices associated with work-related risk reduction and injury prevention (e.g., safety training, hazard recognition, risk management, communication)</li> </ul>	<ul style="list-style-type: none"> <li>Describe and discuss standard guidelines and procedures for reducing risk and injury in the workplace (e.g., following established safety guidelines such as those set out by the Workers' Compensation Board, knowing own abilities and limits, using safety and personal protective equipment, knowing where to go to address a problem)</li> <li>List and discuss primary causes of injury to young workers (e.g., inability to recognize and respond appropriately to hazards, lack of training) propose strategies to minimize workplace hazards</li> </ul>

## Teaching Strategies

- Small-group work
- Class discussion
- Role play

## Suggested Time

- 1 hour

## LESSON 2:

Rights, Responsibilities, and a  
Safer Workplace

## Lesson at a Glance

### Materials and Resources

- *Student Handout 3: Rights and Responsibilities T-Chart*
- *Student Handout 4: Workers' Health and Safety Rights and Responsibilities in the Workplace*
- *Student Handout 5: Employers' Health and Safety Responsibilities in the Workplace*
- *Teacher Resource 1: Rights and Responsibilities T-Chart Answer Key*
- *Student Handout 6: Refusing Unsafe Work*
- *Teacher Resource 2: Rights and Responsibilities Role Play*

### Assessment Strategy

- *Assessment Tool 2: Rights and Responsibilities Assessment*

### Preparation

- Print copies of the student handouts and teacher resources and review them before teaching the lesson.
- Cut out the roles included in the *Teacher Resource 2: Rights and Responsibilities Role Play* for easier distribution to students.

## LESSON 2: Rights, Responsibilities, and a Safer Workplace

## Instructional Plan

1. **Introduce** the subject by having students define rights and responsibilities. Have them generate a list of the rights and responsibilities that students have at school. Responses could include:

Rights	Responsibilities
<ul style="list-style-type: none"> <li>• A safe environment</li> <li>• Capable teachers</li> <li>• Respectful treatment by teachers and fellow students</li> <li>• Protection from verbal and physical aggression</li> <li>• Access to a counsellor</li> <li>• Access to equipment that is well maintained and properly functioning</li> </ul>	<ul style="list-style-type: none"> <li>• To respect teachers and fellow students</li> <li>• Not to interfere with the learning of others</li> <li>• To listen when others are speaking</li> <li>• To do homework</li> <li>• Not to be verbally or physically aggressive with other students</li> <li>• To put litter in containers</li> <li>• To report unsafe equipment</li> <li>• To report spills</li> <li>• To wear protective clothing when required (e.g., in PE, lab, shop)</li> </ul>

2. **Ask** students to consider how the concept of rights and responsibilities applies to the workplace. Elicit some responses and discuss briefly. Ask students where they might be able to go to find out more information about workplace rights and responsibilities. Responses should include: employment centres, school or community career centres, the WCB, their supervisor and/or health and safety committee/safety representative, the public library, and online sources of work safety information (such as the WCB website and others that focus on the subject of worker safety). Write student responses on the board. Fill in any responses that students may have missed.
3. **Organize** students into small working groups of three to five. Distribute *Student Handout 3: Rights and Responsibilities T-Chart*. Have students work together to fill in the four quadrants of the chart.
4. **Involve** students in the creation of a class T-chart. Have volunteers read out their responses. Record all answers on the board in the form of a T-chart similar to the one on the handout. Instruct students to fill in any answers they did not already have.
5. **Distribute** *Student Handout 4: Workers' Health and Safety Rights and Responsibilities in the Workplace* and *Student Handout 5: Employers' Health and Safety Responsibilities in the Workplace*. Instruct students to fill in any additional rights and responsibilities not yet recorded on their T-charts. (You may want to refer to the information provided in *Teacher Resource 1: Rights and Responsibilities T-Chart Answer Key*.) Discuss briefly. Ask the class if there were any rights or responsibilities that surprised them.



## LESSON 2: Rights, Responsibilities, and a Safer Workplace

## Instructional Plan continued

6. **Inform** students that WCB's Occupational Health and Safety Regulations outline specific rights and responsibilities in the workplace. The regulations:

- State that workers must receive adequate direction and instruction
- Lay out supervisor responsibilities
- Describe the procedure a worker should follow in refusing unsafe work
- State that workers should not be subject to discipline for refusing unsafe work

7. **Ask** students to consider what they would do if they were asked to perform unsafe work. Would they agree to do it or refuse? What reasons do they have for their answer? (The most common response for students to give for refusing to do a task is "I might lose my job.") Ask them how they could refuse effectively. Inform students that the WCB Regulations state:

*(1) A worker must not be subject to disciplinary action because the worker has acted in compliance with the regulations or with an order made by an officer.*

*(2) Temporary assignment to alternative work at no loss in pay to the worker until the matter is resolved is deemed not to constitute disciplinary action.*

These regulations are based on **the worker's perception** of the hazardous situation, **not the employer's**.

8. **Distribute** *Student Handout 6: Refusing Unsafe Work*. Review with students the WCB Regulations regarding the refusal of unsafe work. Discuss briefly.
9. **Invite** six students to volunteer to participate in three role plays, two students in each one. Using *Teacher Resource 2: Rights and Responsibilities Role Play*, distribute the roles to each pair. **Ask them not to discuss their roles with the other person in their pair.**

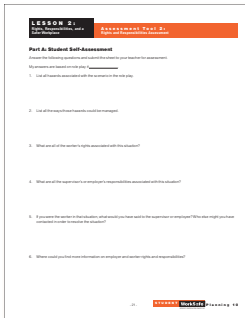
Have each pair briefly prepare and then perform their role play for the class. After each role play, invite the class to comment on how effective the worker was in conveying his or her safety concerns to the employer's or supervisor's attention. Ask how responsive the employer or supervisor was to the worker's concerns. Also ask the students what they would do if faced with such a response from their supervisor or employer.





## LESSON 2: Rights, Responsibilities, and a Safer Workplace

## Instructional Plan continued



### Assessment

- Collect all student written work and then distribute *Assessment Tool 2: Rights and Responsibilities Assessment*. Instruct students to use one of the role plays as the basis for their answers to the questions in Part A. Collect these self-assessments and, in Part B, record your assessment of each student's work in this lesson.

### Extensions

- Have students write their own role plays on the subject of workplace rights and responsibilities. Invite them to act out their role plays for the rest of the class.
- Ask students to interview their parents or guardians about worker rights and responsibilities in their workplaces. Have their parents or guardians ever been involved in, or witnessed, an unsafe situation or workplace accident that resulted in injury? What were the consequences? You may want to have students work individually or as a class to compose the list of interview questions.
- Work with the class to compose a list of classroom rights and responsibilities for both students and the teacher.



## Rights, Responsibilities, and a Safer Workplace

### Student Handout 3: Rights and Responsibilities T-Chart

## LESSON 2:

Rights, Responsibilities, and a  
Safer Workplace

## Student Handout 4:

Workers' Health and Safety Rights and Responsibilities in the Workplace

### Workers have the right to:

- Information, instruction, and training about safe work procedures and how to recognize hazards on the job
- Supervision to make sure they work without undue risk
- Equipment and safety gear required to do the job safely (workers are responsible for providing their own clothing to protect themselves against the natural elements, general purpose work gloves, safety footwear, and safety headgear)
- Refuse to do tasks and to work in conditions they think are unsafe, without being fired or disciplined for refusing
- Participate in workplace health and safety committees and activities

**As a worker, you are responsible** for working without undue risk to yourself or others. To keep safe on the job:

- Don't assume you can do something you've never done before. Ask your supervisor to show you how to do it safely before you begin work. Ask your employer for job safety training.
- Use all safety gear and protective clothing when and where required.
- Always follow safe work procedures and encourage your co-workers to do the same.
- Immediately correct unsafe conditions or report them right away to your supervisor.
- Know how to handle any hazardous materials or chemicals you use on the job.
- If you have any doubts about your safety, talk to your supervisor.
- Tell your supervisor of any physical or mental conditions that may make you unable to work safely.

## LESSON 2:

### Rights, Responsibilities, and a Safer Workplace

## Student Handout 5:

### Employers' Health and Safety Responsibilities in the Workplace

One of the most important responsibilities of the employer is to ensure that workers are adequately trained in safe work procedures and properly supervised when carrying out their duties. Under the *Workers Compensation Act*, the employer has the legal responsibility to ensure that every worker receives adequate training. The employer must also follow-up to see that the supervisor is carrying out all required training.

Employers are responsible for ensuring that all workers can do their jobs without unnecessary risk. Young and new workers in particular are often inexperienced and unable to recognize hazards. Many won't ask questions about workplace safety for fear of looking incompetent or simply because they don't know what to ask. The procedures employers have in place for workplace health and safety should take account of these and other facts about young and new workers.

#### Employers should:

- Know and comply with workplace health and safety regulations that apply to their workplace.
- Create a workplace culture that encourages young and new workers to ask questions about any health and safety concerns they may have.
- Involve supervisors and experienced workers in identifying potential health and safety problems and in developing prevention programs to eliminate these hazards.
- Give supervisors and young and new workers all the training they need to do their jobs and to recognize hazards.
- Provide the required safety gear and protective clothing (workers are responsible for providing their own clothing to protect them against the natural elements, general purpose work gloves, safety footwear and safety headgear).
- Evaluate equipment that young workers might be required to operate to ensure that it is safe for their use. Make sure they know how to use any equipment safely.
- Make sure that young workers are appropriately supervised to prevent injuries and exposure to hazardous materials. Create an environment where "safe" behaviour is rewarded and recognized in the workplace.
- Provide managers and supervisors with knowledge of how to train new and young workers. Check back with them frequently to ensure they are following up with new staff to ensure that questions are being answered and to observe if the work is being done safely.

## LESSON 2:

### Rights, Responsibilities, and a Safer Workplace

## Teacher Resource 1:

### Rights and Responsibilities T-Chart Answer Key

#### Worker Rights

- A safe working environment
- Proper health and safety information, instruction, and training
- Supervision to make sure the job is done safely
- Well-maintained and functioning personal protective equipment
- Right to refuse to do work that may endanger a worker's safety or put a worker's health at risk
- Right to participate in workplace health and safety committees and activities

#### Worker Responsibilities

- Must pay attention to health and safety training
- Must follow all health and safety procedures
- Must ask questions when information is unclear
- Must always wear personal protective equipment and keep it in good condition
- Must use machinery and equipment properly
- Must familiarize himself or herself with emergency procedures, location of fire extinguishers, emergency exits, etc.
- Must report any perceived hazards on the job
- **Must refuse to do any work that might create an undue hazard to the health and safety of any person**

#### Employer Rights

- Can expect workers to pay attention during health and safety training
- Can expect workers to remember their training and follow health and safety principles at all times
- Can expect workers to report any perceived hazards in the workplace
- Can expect workers to wear their personal protective equipment at all times
- Can expect workers to inform them about any physical or mental conditions that may impair their ability to perform their jobs safely

#### Employer Responsibilities

- Must provide health and safety training to all workers for general and specific tasks
- Must develop a workplace health and safety policy (e.g., what to do in emergency situations)
- Must display health and safety information where all workers can see it
- Must provide well-maintained and properly functioning personal protective equipment for all workers
- Must alert workers to any hazards in the workplace and provide information on how to minimize the risks associated with those hazards

## LESSON 2:

### Rights, Responsibilities, and a Safer Workplace

## Student Handout 6:

### Refusing Unsafe Work

According to the Workers' Compensation Board Occupational Health and Safety Regulations:

1. *A person must not carry out or cause to be carried out any work process or operate or cause to be operated any tool, appliance or equipment if that person has reasonable cause to believe that to do so would create an undue hazard to the health and safety of any person.*
2. *A worker who refuses to carry out a work process or operate a tool, appliance or equipment pursuant to subsection (1) must immediately report the circumstances of the unsafe condition to his or her supervisor or employer.*
3. *A supervisor or employer receiving a report made under subsection (2) must immediately investigate the matter and*
  - *Ensure that any unsafe condition is remedied without delay, or*
  - *If in his or her opinion the report is not valid, must so inform the person who made the report.*
4. *If the procedure under the WCB Regulations does not resolve the matter and the worker continues to refuse to carry out the work process or operate the tool, appliance or equipment, the supervisor or employer must investigate the matter in the presence of the worker who made the report and in the presence of:*
  - *A worker member of the occupational health and safety committee,*
  - *A worker who is selected by a trade union representing the worker, or*
  - *If there is no occupational health and safety committee or the worker is not represented by a trade union, any other reasonably available worker selected by the worker.*
5. *If the investigator under the WCB Regulations does not resolve the matter and the worker continues to refuse to carry out the work process or operate the tool, appliance or equipment, both the supervisor or the employer, and the worker must immediately notify an officer, who must investigate the matter without undue delay and issue whatever orders are deemed necessary.*

You have the right to refuse work if you (a) have reasonable cause and (b) follow all procedures in WCB Regulations. If you refuse to do work you consider unsafe, you must follow the steps below:

1. You must discuss the situation with your supervisor or employer.
2. If the matter is not resolved, then a worker representative must be involved.
3. If the matter is still unresolved, a WCB field officer is called in by both worker and management representatives.
4. While the matter is being resolved, you will be temporarily reassigned to another job.

If you feel you must refuse work, be sure to follow the procedures in the regulations and any other policies that the employer may have. **Don't just stop work and go home!** If you don't follow the procedures, you may be subject to disciplinary action by your employer.



## LESSON 2:

Rights, Responsibilities, and a  
Safer Workplace

## Teacher Resource 2:

Rights and Responsibilities Role Play



### Case One: Worker's Role

You are a part-time worker at a fast food restaurant. You have only been working at your job for a few weeks. You like your job very much and don't want to do anything that might jeopardize it.

One of your duties is to empty all garbage bins at the end of the night and carry the full garbage bags out to the main garbage bin at the back of the restaurant. You're still a bit slow performing your closing duties, and don't get around to dealing with the garbage until after the mopping has been done. The garbage bags are heavy and the mopped floor is slippery. You're worried that you may slip and injure yourself performing this task. You don't want to complain because you don't want to get fired. But at the same time, you don't want to injure yourself. After a lot of thought, you decide to tell your supervisor that you think carrying the heavy garbage bags across the wet floor is dangerous. You want to ask the supervisor to arrange for someone to give you a hand with the garbage or to delay the mopping until after the garbage has been taken out.



### Case One: Supervisor's Role

You are the supervising manager at a fast food restaurant. You like your job and the workers you supervise. You're always looking out for them and working to improve conditions so that the workplace is as safe as possible.



### Case Two: Worker's Role

You are a full-time worker in a small, family-owned delicatessen. One of your tasks is to use a large meat slicer to slice meat for customers. Recently, you noticed that the safety guard on the slicer was broken. You brought the matter to the owner's attention and assumed the slicer would get repaired right away. But it's been a whole week now and the guard is still broken. Although you've been very careful while using the machine, you worry that if the deli gets busy, you might lose your concentration and cut yourself, or that another worker might get cut. You've decided to bring the matter up with the owner again. He can be grouchy and abrupt at times, but you think he will listen to reason about the dangers involved in using machinery with a broken safety guard.



### Case Two: Employer's Role

You are the owner of a small, family-owned delicatessen. The shop was founded by your grandfather and is very important to you. Recently, business hasn't been good. A large chain grocery store has opened up in your area and is drawing away a lot of your customers. You're struggling to stay afloat and don't have any extra money to put back into the business.

A couple of weeks ago, one of your workers pointed out that a safety guard on one of the meat slicers had broken. You plan to get it fixed soon, but just haven't gotten around to it with all the work you have. You've warned the employees to be careful when using that slicer and so far there hasn't been a problem. Besides, you think injuries are the fault of careless employees, not the machinery. When you were young, none of the meat slicers had safety guards on them, and you still have all your fingers.



## LESSON 2:

Rights, Responsibilities, and a  
Safer Workplace

## Teacher Resource 2:

Rights and Responsibilities Role Play continued



### Case Three: Worker's Role

You are a part-time worker at a local retail store. You work in the store's automotive department.

On a recent trip to the stockroom, you pulled a back muscle while standing on a ladder retrieving a case of motor oil from a high shelf. The cases of motor oil are heavy and have to be carried several steps down the ladder. Your back wasn't sore for very long, but you're worried that either you or someone else is going to be injured carrying the cases of motor oil down from that shelf. You think the cases should be moved to a lower shelf.

You decide to tell your supervisor about the problem.



### Case Three: Supervisor's Role

You are a 20-year-old supervisor working at a local retail store. You are big and strong. You played on your school's football team and now lift weights in your spare time.

You are generally a nice person, but sometimes tease people for being smaller or weaker than you are. You tease other workers for not being able to perform the same physical tasks that you can.

And, although you don't like to admit it, you know you're also a bit lazy and don't like being given extra work to do.



## LESSON 2:

Rights, Responsibilities, and a  
Safer Workplace

## Assessment Tool 2: Rights and Responsibilities Assessment

### Part A: Student Self-Assessment

Answer the following questions and submit the sheet to your teacher for assessment.

My answers are based on role play #\_\_\_\_\_.

1. List all hazards associated with the scenario in the role play.
2. List all the ways those hazards could be managed.
3. What are all of the worker's rights associated with this situation?
4. What are all the supervisor's or employer's responsibilities associated with this situation?
5. If you were the worker in that situation, what would you have said to the supervisor or employee? Who else might you have contacted in order to resolve the situation?
6. Where could you find more information on employer and worker rights and responsibilities?

## LESSON 2:

Rights, Responsibilities, and a  
Safer Workplace

## Assessment Tool 2:

Rights and Responsibilities Assessment continued

### Part B: Teacher Assessment

Use the following chart to assess student work during this lesson.

The student is able to identify:	Does not meet expectations	Meets expectations	Fully meets expectations	Exceeds expectations
Hazards associated with workplace situations	Student isn't able to identify the relevant hazard	Student identifies the relevant hazard	Student identifies and describes the context in which the relevant hazard occurs	Student identifies other scenarios where the hazard may occur
Ways in which to limit the risks associated with a hazardous workplace situation	Student isn't able to identify any ways to limit the risks of the relevant workplace hazards	Student identifies some ways to limit the risks of the relevant workplace hazard	Student identifies all ways to limit the risks of workplace hazards covered during class discussion	Student identifies more ways to limit the risks of workplace hazards than were covered during class discussion
Worker rights associated with workplace health and safety	Student isn't able to identify any worker rights	Student identifies some worker rights	Student identifies all worker rights covered during class discussion	Student identifies more worker rights than were covered during class discussion
Employer or supervisor responsibilities associated with workplace health and safety	Student isn't able to identify any employer or supervisor responsibilities	Student identifies some employer or supervisor responsibilities	Student identifies all employer or supervisor responsibilities covered during class discussion	Student identifies more employer or supervisor responsibilities than were covered during class discussion
Effective ways to communicate concern about a hazardous workplace situation	Student isn't able to identify any effective ways to communicate concerns	Student identifies some effective ways to communicate concerns	Student identifies all effective ways to communicate concerns covered during class discussion	Student identifies more effective ways to communicate concerns than were covered during class discussion
Places to get information on employer and worker rights and responsibilities	Student isn't able to identify any places to get information on employer and worker rights and responsibilities	Student identifies some places to get information on employer and worker rights and responsibilities	Student identifies all places to get information on employer and worker rights and responsibilities covered during class discussion	Student identifies more places to get information on employer and worker rights and responsibilities than were covered during class discussion

Teacher's comments:

## Purpose

In this lesson, students brainstorm and research the major causes of workplace injury.

## British Columbia Planning 10 Curriculum Connections

Prescribed Learning Outcomes	Suggested Achievement Indicators
<i>It is expected that students will:</i>	<i>Students who have fully met the prescribed learning outcome are able to:</i>
<ul style="list-style-type: none"> <li>Analyse practices associated with work-related risk reduction and injury prevention (e.g., safety training, hazard recognition, risk management, communication)</li> </ul>	<ul style="list-style-type: none"> <li>Describe and discuss standard guidelines and procedures for reducing risk and injury in the workplace (e.g., following established safety guidelines such as those set out by the Workers' Compensation Board, knowing own abilities and limits, using safety and personal protective equipment, knowing where to go to address a problem)</li> <li>List and discuss primary causes of injury to young workers (e.g., inability to recognize and respond appropriately to hazards, lack of training)</li> <li>Create a list of factors that contribute to making workers and workplaces physically and emotionally safe (e.g., safety training programs, team building, harassment policies)</li> <li>Propose strategies to minimize workplace hazards</li> </ul>

## Teaching Strategies

- Brainstorming
- Online or print-based research
- Independent or pair work

## Suggested Time

- 1–2 hours

## Materials and Resources

- Teacher Resource 3: Causes of Industry-Specific Injuries*
- Student Handout 7: Young Workers: Be a Survivor*
- Student Handout 8: Causes of Workplace Injury Assignment*
- Student Handout 9: Workplace Hazards Risk Reduction*

## Assessment Strategies

- *Assessment Tool 3: Causes of Workplace Injury Assessment*

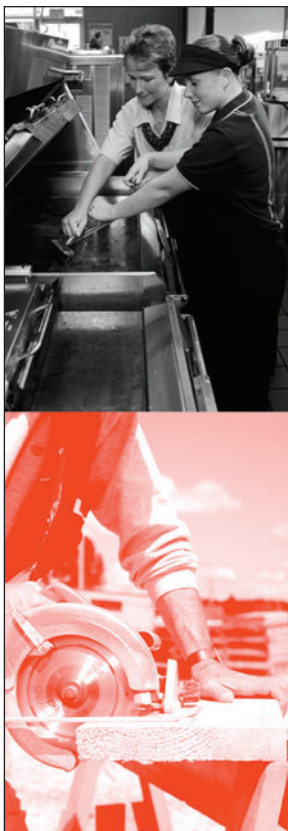
## Preparation

- Print copies of the student handouts and teacher resources and review them before teaching the lesson.

## LESSON 3:

### Major Causes of Workplace Injury

## Instructional Plan



1. **Introduce** the lesson by informing students that WCB statistics indicate three main causes for the high rate of young worker injuries:

- Lack of supervision or training
- Minimal knowledge of rights and responsibilities
- Lack of experience in recognizing hazardous situations

2. **Ask** students if any have ever been injured on a job. Invite them to share any stories they might have. Then ask them to suggest jobs they think might be hazardous, and describe the sort of hazards and hazardous activities that workers might experience in those jobs. Remind students that a hazard is an action or situation that could cause injury or death. Record their responses on the board. Responses could include:

Hazardous Jobs	Hazards and Hazardous Activities
<ul style="list-style-type: none"> <li>• Construction work</li> </ul>	<ul style="list-style-type: none"> <li>• Lifting heavy items, operating equipment without proper training, repetitive work</li> </ul>
<ul style="list-style-type: none"> <li>• Logging work</li> </ul>	<ul style="list-style-type: none"> <li>• Lifting heavy items, falling from trees, operating equipment without proper training, being pinned under falling trees</li> </ul>
<ul style="list-style-type: none"> <li>• Retail work</li> </ul>	<ul style="list-style-type: none"> <li>• Lifting objects, working on ladders or other raised areas, using knives, workplace violence</li> </ul>
<ul style="list-style-type: none"> <li>• Warehouse work</li> </ul>	<ul style="list-style-type: none"> <li>• Repetitive lifting of heavy boxes, unstable stacks of product, operating a forklift without proper training</li> </ul>
<ul style="list-style-type: none"> <li>• Restaurant work</li> </ul>	<ul style="list-style-type: none"> <li>• Slipping, tripping, handling hot items, carrying heavy trays, coming into contact with hot oil</li> </ul>

3. **Brainstorm** as a class possible major causes of injury in the workplace. Write students' answers on the board. Responses could include:

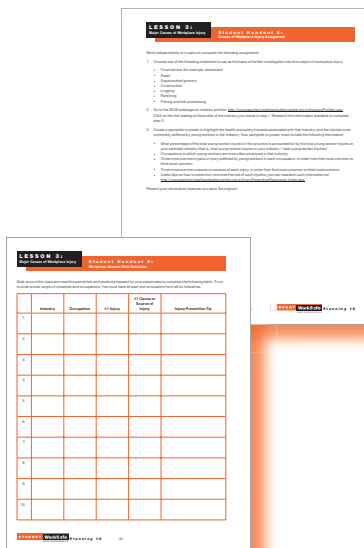
- a. Slips, trips, and falls
- b. Improper use of equipment
- c. Not turning power off when repairing equipment
- d. Being struck by falling objects or pushed into an object
- e. Improper use or storage of chemicals and other hazardous materials
- f. Improper handling of sharp objects (e.g., knives, glass, woodworking tools)
- g. Improper lighting
- h. Faulty equipment
- i. Vehicle accidents
- j. Improper lifting

# LESSON 3: Major Causes of Workplace Injury

## Instructional Plan continued



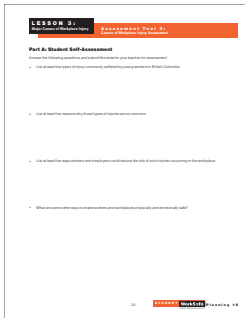
4. **Ask** students to guess the top seven dangers for young workers in British Columbia. Refer to *Teacher Resource 3: Causes of Industry-Specific Injuries* and *Student Handout 7: Young Workers: Be a Survivor* for relevant information. At the end of the discussion, distribute copies of the handout to students. Point out to students that the highest number of young workers are injured in the retail and restaurant sectors (see the WCB young worker website <http://youngworker.healthandsafetycentre.org/s/Home.asp> for information on industry claim profiles).
5. **Distribute** *Student Handout 8: Causes of Workplace Injury Assignment*. Have students work independently or in pairs to complete the assignment. Ask students to choose a particular British Columbia industry to use as the basis for further investigation. Then, have them conduct online research and consult print materials (see Adaptations) to determine which hazards are common to that industry. Ask students to record statistics on injury rates and costs and to present the information in the form of a poster or pamphlet.
6. **Display** student posters and pamphlets around the classroom. Distribute *Student Handout 9: Workplace Hazards Risk Reduction* and have students walk around the classroom to fill in the table.
7. **Debrief** with a discussion about risk reduction techniques. Consult <http://youngworker.healthandsafetycentre.org/s/InjuryPreventionResources-Index.asp> to find relevant information on how to minimize hazards in the top industries for young worker claims in British Columbia.





## LESSON 3: Major Causes of Workplace Injury

### Instructional Plan continued



### Adaptation

- If students do not have easy access to the Internet, arrange them in groups and have them share print research materials you can download from: <http://youngworker.healthandsafetycentre.org/s/IndustryProfiles.asp> and <http://youngworker.healthandsafetycentre.org/s/InjuryPreventionResources-Index.asp>

### Extensions

- Have students work in groups to create skits that depict a specific workplace hazard and how the risks associated with it can be reduced.
- Invite a speaker from the WorkSafe Speakers Network to come to your class and speak about his or her own experience. Consult the WCB website for more information: <http://youngworker.healthandsafetycentre.org/s/Resources-Speakers.asp>
- Have students work together to create a newsletter that focuses on the subject of workplace hazards and injuries. Content should include articles based on the data students presented in the posters and pamphlets they created. Students can distribute copies of this newsletter to other students in the school.

### Assessment

- Distribute *Assessment Tool 3: Causes of Workplace Injury Assessment* and have students complete Part A. Collect these self-assessments and, in Part B, record your assessment of each student's work in this lesson.



The following are examples of possible causes of industry-specific injuries. For more detailed information, please see the WCB website for young workers (<http://youngworker.healthandsafetycentre.org/s/Home.asp>).

### **Food service (restaurants, fast food outlets)**

- Struck by objects
- Slips and trips (e.g., on greasy floor)
- Handling of hot items
- Contact with chemical substances
- Improper lifting
- Contact with hot items
- Horseplay

### **Food retail (grocery stores, supermarkets)**

- Improper lifting
- Improper use of box cutter
- Repetitive lifting
- Poor posture
- Heavy loads
- Improper use of mobile equipment
- Contact with hot objects
- Contact with harmful substances or materials

### **Retail**

- Improper lifting
- Poor posture
- Cluttered work area
- Improper use of box cutter (or other tools)
- Repetitive lifting or other work activities
- Lack of safe work procedures

### **Logging**

- Improper use of equipment or tools
- Contact with running equipment
- Fall on uneven terrain
- Fall from large machinery
- Not following safe work procedures
- Not paying attention

## **Construction**

- Repetitive lifting or motion
- Heavy loads
- Lack of personal protective equipment
- Lack of training
- Overhead hazards

## **Warehouse**

- Improper lifting
- Lifting of heavy objects
- Unstable stacks of products
- Repetitive work activities
- Operating and working around moving equipment without proper training
- Not following safe work procedures

# Young workers, be on guard

**Take care on the job.  
Your workplace can be dangerous.**

BE A SURVIVOR



## Count on some risk

Young workers have more injuries than any other age group in B.C. This is roughly how it adds up:

- 34 young workers injured every working day
- 5 permanently disabled each week
- About 5 die each year at work

Hardest hit are young male workers. They are 70 percent more likely to be injured than any other group of workers.

## Your top seven dangers

Here are the top seven dangers for young workers in B.C.:

- 1 Lifting objects as retail clerks, shipper-receivers, labourers, material handlers
- 2 Working on ladders, stairs, scaffolding, other raised areas
- 3 Using knives in food service, retail sales, supermarkets
- 4 Working with hot substances or equipment in restaurants
- 5 Driving or riding in vehicles and operating or working near mobile equipment
- 6 Operating food slicers in restaurants, supermarkets
- 7 Working near running equipment or machinery in a variety of jobs

## Tips for your best defence

- ✓ Always ask. Never assume you can do something you've never done before. Always have your supervisor show you how to do it safely.
- ✓ Use safety gear and protective clothing when your job calls for them.
- ✓ Always follow safe work procedures and get co-workers to do the same.
- ✓ Fix anything unsafe or report it to your supervisor — right away.
- ✓ Know how to handle any hazardous material you use on the job.
- ✓ Tell your supervisor if you feel at all unsafe.

Work independently or in pairs to complete the following assignment.

1. Choose one of the following industries to use as the basis of further investigation into the subject of workplace injury:
  - Food service (for example, restaurant)
  - Retail
  - Supermarket/grocery
  - Construction
  - Logging
  - Ranching
  - Fishing and fish processing
2. Go to the WCB webpage on industry profiles: <http://youngworker.healthandsafetycentre.org/s/IndustryProfiles.asp>. Click on the link leading to the profile of the industry you chose in step 1. Research the information available to complete step 3.
3. Create a pamphlet or poster to highlight the health and safety hazards associated with that industry, and the injuries most commonly suffered by young workers in the industry. Your pamphlet or poster must include the following information:
  - What percentage of the total young worker injuries in the province is accounted for by the total young worker injuries in your selected industry (that is, total young worker injuries in your industry ÷ total young worker injuries)
  - Occupations in which young workers are most often employed in that industry
  - Three most common types of injury suffered by young workers in each occupation, in order from first most common to third most common
  - Three most common causes or sources of each injury, in order from first most common to third most common
  - Useful tips on how to prevent or minimize the risk of such injuries; you can research such information at: <http://youngworker.healthandsafetycentre.org/s/InjuryPreventionResources-Index.asp>

Present your information however you want. Be original!

## LESSON 3:

### Major Causes of Workplace Injury

## Student Handout 9:

### Workplace Hazards Risk Reduction

Walk around the class and read the pamphlets and posters prepared by your classmates to complete the following table. Try to include a wide range of industries and occupations. You must have at least one occupation from all six industries.

	Industry	Occupation	#1 Injury	#1 Cause or Source of Injury	Injury Prevention Tip
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					

### **Part A: Student Self-Assessment**

Answer the following questions and submit the sheet to your teacher for assessment.

- List at least five types of injury commonly suffered by young workers in British Columbia.
- List at least five reasons why those types of injuries are so common.
- List at least five ways workers and employers could reduce the risk of such injuries occurring in the workplace.
- What are some other ways to make workers and workplaces physically and emotionally safe?

## LESSON 3:

### Major Causes of Workplace Injury

## Assessment Tool 3:

### Causes of Workplace Injury Assessment continued

### Part B: Teacher Assessment

Use the following chart to assess student work during this lesson.

The student is able to:	Does not meet expectations	Meets expectations	Fully meets expectations	Exceeds expectations
Identify types of injury commonly suffered by workers in British Columbia		Student identifies some common types of injury	Student identifies most or all types of injury	Student identifies and describes all types of injury without prompting
Explain why those injuries are so common in British Columbia	Student isn't able to provide one reason why those injuries are so common	Student provides some reasons why those injuries are so common	Student provides most or all reasons why those injuries are so common	Student provides all reasons why those injuries are so common without prompting
Identify ways the risks of those injuries could be reduced	Student isn't able to identify any way the risks might be reduced	Student identifies some ways the risks might be reduced	Student identifies most or all ways the risks might be reduced	Student identifies and describes all ways the risks might be reduced without prompting
Identify strategies that could contribute to the physical and emotional safety of workers and workplaces	Student isn't able to identify any strategies that could contribute to workplace safety	Student identifies some strategies that could contribute to workplace safety	Student identifies most or all strategies that could contribute to workplace safety	Student identifies and describes all strategies that could contribute to workplace safety without prompting
Produce a pamphlet or poster that accurately represents important information about workplace safety	Student work is not submitted, or is submitted but is shoddily prepared or contains glaring inaccuracies	Student work is neatly presented, but does not contain comprehensive information and there are some errors	Student work is attractively presented, contains comprehensive information, and is error-free	Student work is attractively and inventively presented, contains more information than expected, and indicates further research was done

**Teacher's comments:**



## Purpose

In this lesson, students learn to recognize potentially hazardous workplace situations.

## British Columbia Planning 10 Curriculum Connections

Prescribed Learning Outcomes	Suggested Achievement Indicators
<i>It is expected that students will:</i>	<i>Students who have fully met the prescribed learning outcome are able to:</i>
<ul style="list-style-type: none"><li>Analyse practices associated with work-related risk reduction and injury prevention (e.g., safety training, hazard recognition, risk management, communication)</li></ul>	<ul style="list-style-type: none"><li>Describe and discuss standard guidelines and procedures for reducing risk and injury in the workplace (e.g., following established safety guidelines such as those set out by the Workers' Compensation Board, knowing own abilities and limits, using safety and personal protective equipment, knowing where to go to address a problem)</li><li>List and discuss primary causes of injury to young workers (e.g., inability to recognize and respond appropriately to hazards, lack of training)</li><li>Create a list of factors that contribute to making workers and workplaces physically and emotionally safe (e.g., safety training programs, team building, harassment policies)</li><li>Propose strategies to minimize workplace hazards</li></ul>

## Teaching Strategies

- Direct instruction
- Small-group work
- Independent study

## Suggested Time

- 1–2 hours, including homework time

## Materials and Resources

- Student Handout 10: Hazard Recognition Scenarios 1–10* (visuals that can be shown as they are or turned into overhead transparencies)
- Teacher Resource 4: Hazard Recognition Answer Key*
- Student Handout 11: Hazard Recognition Activity Worksheet*
- Student Handout 12: Mark Ignores the Rules*
- Student Handout 13: Safe Work Practices*

## LESSON 4:

### Hazard Recognition

## Lesson at a Glance

continued

### Assessment Strategies

- *Assessment Tool 4: Hazard Recognition Assessment*

### Preparation

- Print copies of the student handouts and teacher resources and review them before teaching the lesson.

## LESSON 4:

### Hazard Recognition

## Instructional Plan



1. **Introduce** the subject by asking students to define the word “hazard.” (A hazard is an action or situation that could cause injury or death.)
2. **Brainstorm** with students a list of possible workplace hazards. Record their responses on the board under four category headings: physical, chemical, ergonomic, and biological. Once you’ve recorded a few hazard examples under each heading, ask the students to explain the nature of the four categories and come up with some category-specific hazards. Suggested responses could include:
  - Physical hazards: involve accidents or physical trauma (e.g., slipping or tripping hazards, unstable ladders, using a saw without the guard, getting into altercations with violent customers)
  - Chemical hazards: involve burns, rashes, or illness resulting from exposure to unsafe chemicals, e.g., chemical spills, improper handling or use of a chemical substance, prolonged exposure to toxic fumes
  - Ergonomic hazards: involve injuries resulting from improper lifting, repetitive motions, overextending (e.g., spending long periods at the computer, poor set-up of workstation)
  - Biological hazards: involve exposure to unhealthy germs, bacteria, and other life forms (e.g., contact with used needles, contact with bodily fluids, exposure to poisonous plants, insects, or reptiles)
3. **Discuss** with students three key steps that can be used to control a hazard: Recognition, Evaluation, and Control. Then suggest a simple way of remembering these steps:

**See it.**



**Think it.**



**Do it.**



# LESSON 4: Hazard Recognition

## Instructional Plan continued



- Inform** students that “See it,” “Think it,” and “Do it” are steps they can use to assess and reduce the risk of hazardous situations. At each step, they should ask the following set of questions:

- **See it. Questions to ask:** What is unsafe? How many unsafe acts or conditions are there? What are the hazards?
- **Think it. Questions to ask:** Why is it a hazardous situation? What could happen? What is creating the hazard? What injuries could occur?
- **Do it. Questions to ask:** What could be done to prevent an accident from happening? What could minimize the risk? What could be done to eliminate or minimize the hazard?

**See it.**



**Think it.**



**Do it.**



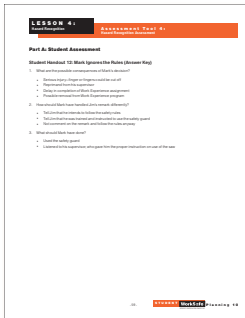
- Organize** the class into five groups. Distribute two of the *Student Handout 10: Hazard Recognition Scenarios* to each of the groups, as well as *Student Handout 11: Hazard Recognition Activity Worksheet* to all class members. Have groups discuss their scenarios and answer the questions on the student handout using the “See it, Think it, Do it” strategy.
- Ask** each group to present their findings to the class. If visual sets were made into overhead transparencies, use the overheads during the group presentations.
- Debrief** with a short class discussion. Refer to *Teacher Resource 4: Hazard Recognition Answer Key* for relevant information.
- Distribute** *Student Handout 12: Mark Ignores the Rules* and *Student Handout 13: Safe Work Practices* to the class and have students complete the handouts as independent study or homework.

## LESSON 4:

### Hazard Recognition

## Instructional Plan

continued



### Assessment

- Distribute copies of *Assessment Tool 4: Hazard Recognition Assessment*, Part A, to students so that they assess their own work on Student Handouts 11 and 12. Then, in Part B, record your assessment of each student's work in this lesson.

### Extensions

- Have students write a fictional journal entry describing an experience with a workplace hazard. Encourage the students to conduct some online research to add realistic detail to their story, especially in terms of consequences resulting from the injury.
- Direct students to the WCB website and encourage them to try out the push/pull/carry calculator (<http://ergonomics.healthandsafetycentre.org/calculator/ergo/ppcc/intro.htm>) to learn more about the risks associated with pushing, pulling, and carrying heavy objects.
- Have students create a diorama of workplace hazards and set it up somewhere in the school so that other students may have a chance to see it and learn from it.





## Warehouse Worker



## Cashier





## Deep Fryer





## Construction Worker



## Cook Assistant





## Kitchen Worker



## Woodworker





## Supermarket Worker



## Mechanic





## Server and Busperson



## LESSON 4:

### Hazard Recognition

## Teacher Resource 4:

### Hazard Recognition Answer Key



### Visual 1: Warehouse Worker

**See it** (Ask yourself, “What unsafe acts or conditions are shown here?”)

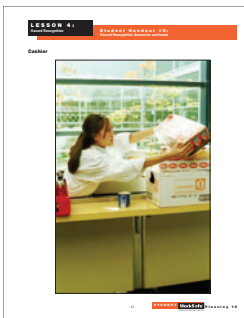
- Worker is reaching too high to lift box
- Worker has leg on second rung of ladder
- Worker is in unstable position
- Box could be too heavy to lift
- Forklift is behind worker

**Think it** (Ask yourself, “Why is this a hazardous situation?”)

- Worker could fall off ladder
- Another worker may start operating the forklift
- Box could fall onto worker
- Worker could get back strain

**Do it** (Ask yourself, “What should the worker do to prevent an accident from happening?”)

- Not stand on the top two rungs of ladder
- Ensure ladder is in correct and secure position
- Use proper lifting techniques
- Ensure forklift driver is aware of worker on ladder
- Ask for assistance with heavy boxes, if required



### Visual 2: Cashier

**See it** (Ask yourself, “What unsafe acts or conditions are shown here?”)

- Worker is reaching over stacked items
- Worker is overextending arms
- Item may be too heavy for lifting
- Items not stacked properly

**Think it** (Ask yourself, “Why is this a hazardous situation?”)

- Worker could strain arms, shoulder, or back from awkward lifting
- Items could fall on worker if knocked over
- If glass items broken, worker could get cut
- Grocery items could fall off edge

**Do it** (In this scenario, suggest how an accident can be prevented from happening)

- Not overextend or twist body
- Use proper lifting techniques
- Ask for assistance in lifting heavy items
- Use proper posture while working



## LESSON 4:

### Hazard Recognition

## Teacher Resource 4:

### Hazard Recognition Answer Key continued



### Visual 3: Deep Fryer

**See it** (Ask yourself, “What unsafe acts or conditions are shown here?”)

- Worker is not paying attention to task
- Kitchen items are too close to deep fryer
- Second worker could knock over hot items
- Worker’s hair not tied back

**Think it** (Ask yourself, “Why is this a hazardous situation?”)

- Hot oil could splash onto workers
- Worker could get burned by hot oil or deep fryer
- Kitchen items or utensils could fall into deep fryer
- Worker’s hair could get in the way

**Do it** (Ask yourself, “What should the worker do to prevent an accident from happening?”)

- Pay attention to task
- Remove items or utensils that are too close to deep fryer
- Tie back hair
- Ensure safe work procedures are followed for deep frying



### Visual 4: Construction Worker

**See it** (Ask yourself, “What unsafe acts or conditions are shown here?”)

- Wood items are stacked in unstable position
- Awkward lifting and handling of wood items by worker
- Extension cord lies across the work area
- Worker not wearing safety gloves
- Messy/cluttered area

**Think it** (Ask yourself, “Why is this a hazardous situation?”)

- Worker could get back injury from awkward lifting
- Wood items or ladders could fall onto worker
- Worker’s hand could get cuts or slivers
- Worker could trip and fall on wood items on the ground

**Do it** (Ask yourself, “What should the worker do to prevent an accident from happening?”)

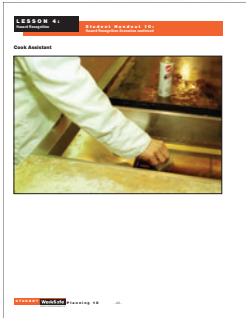
- Wear gloves
- Use proper lifting techniques
- Ensure path or walkway is clear
- Move ladders and extension cord away from work area
- Ask for assistance if required

## LESSON 4:

### Hazard Recognition

## Teacher Resource 4:

### Hazard Recognition Answer Key continued



### Visual 5: Cook Assistant

**See it** (Ask yourself, “What unsafe acts or conditions are shown here?”)

- Grill could be hot
- Cleaning sponge may not be appropriate
- Worker’s long sleeve is in the way
- Aerosol can sitting above possibly hot oil

**Think it** (Ask yourself, “Why is this a hazardous situation?”)

- Flammable aerosol can could explode
- Worker’s fingers could get burned from hot grill or oil
- Worker’s long sleeve could get hot oil on it
- Worker’s fingers could get burned from using small sponge

**Do it** (Ask yourself, “What should the worker do to prevent an accident from happening?”)

- Remove aerosol can from hot area
- Wear proper clothing (no wide sleeves or sleeves too long)
- Use proper cleaning tools
- Use safe work procedures for cleaning grill



### Visual 6: Kitchen Worker

**See it** (Ask yourself, “What unsafe acts or conditions are shown here?”)

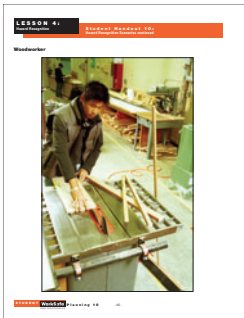
- Worker cannot see where she is going
- Boxes laying on floor
- Box too heavy for worker
- Worker could bump into another worker
- Worker could fall onto hot stove top

**Think it** (Ask yourself, “Why is this a hazardous situation?”)

- Worker could get a strained back from lifting heavy box
- Worker could trip or slip on boxes laying on floor
- Worker could bump another worker with box
- Possible fall onto hot stove or cause another to fall

**Do it** (Ask yourself, “What should the worker do to prevent an accident from happening?”)

- Remove debris/boxes laying on floor
- Do not walk without seeing pathway
- Awareness of other workers working around you
- Get assistance with carrying box
- Use handcart to move box
- Ensure nothing is in pathway
- Use proper lifting/carrying techniques



## Visual 7: Woodworker

**See it** (Ask yourself, “What unsafe acts or conditions are shown here?”)

- Hand is too close to blade
- Extra wood pieces in the way of work
- Broom leaning on work table
- Extension cord behind worker
- General mess in shop
- No guard on saw
- Loose jewelry and clothing on worker

**Think it** (Ask yourself, “Why is this a hazardous situation?”)

- Worker’s fingers/hand could get cut on blade
- Loose clothing could get caught
- Dangling jewelry could get caught in blade
- Broom could fall
- Worker could trip on extension cord and fall

**Do it** (Ask yourself, “What should the worker do to prevent an accident from happening?”)

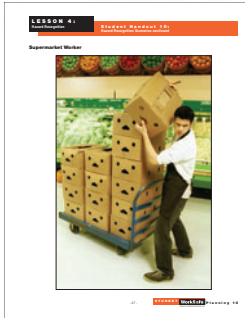
- Keep fingers at least three inches from saw blade
- Ensure there is no clutter around saw area
- Move broom away from table saw
- Have guard on saw
- Ensure safe work procedures are followed for working on saw
- Clean up work area
- Do not wear loose jewelry or clothing while working on saw

## LESSON 4:

### Hazard Recognition

## Teacher Resource 4:

### Hazard Recognition Answer Key continued



### Visual 8: Supermarket Worker

**See it** (Ask yourself, “What unsafe acts or conditions are shown here?”)

- Lifting heavy box in awkward position
- Lifting box with box cutter in hand
- Turning while lifting
- Improper footwear
- Repetitive lifting of boxes

**Think it** (Ask yourself, “Why is this a hazardous situation?”)

- Worker could get back strain due to improper and repetitive lifting
- Hand could get cut from box cutter
- Boxes could fall onto foot
- Cart could move throwing worker off balance

**Do it** (Ask yourself, “What should the worker do to prevent an accident from happening?”)

- Use proper lifting techniques
- Do not turn body while lifting
- Do not lift boxes with box cutter in hand
- Wear proper footwear
- Position cart in better position
- Get assistance if boxes are too heavy



### Visual 9: Mechanic

**See it** (Ask yourself, “What unsafe acts or conditions are shown here?”)

- Worker not wearing face mask
- Worker not wearing safety glasses
- Distracted by other person
- Other person sitting on unstable stack of tires

**Think it** (Ask yourself, “Why is this a hazardous situation?”)

- Asbestos dust is airborne
- Debris can get into worker’s eyes
- Stack of tires could collapse—other person could fall
- Other person could fall onto worker or car

**Do it** (Ask yourself, “What should the worker do to prevent an accident from happening?”)

- Wear proper personal protective equipment (dust mask, safety eyewear)
- Move tires away from car
- Do not sit on stack of tires
- Clean up work area
- Pay attention to task



### Visual 10: Server and Busperson

**See it** (Ask yourself, “What unsafe acts or conditions are shown here?”)

- Server holding tray in unstable position (over shoulder)
- Server cannot see busperson coming around corner
- Server not paying attention to potential oncoming traffic
- Server could lose balance

**Think it** (Ask yourself, “Why is this a hazardous situation?”)

- Workers could collide coming around corner
- Workers could fall due to collision
- Both workers could get hurt from broken glass
- Both workers could get burned by hot liquids

**Do it** (Ask yourself, “What should the worker do to prevent an accident from happening?”)

- Both workers need to pay attention for oncoming traffic
- Mirror could be installed so that workers can see oncoming traffic
- Use proper technique for carrying tray
- Use both hands for carrying tray
- Proceed cautiously around corner




## LESSON 4:

### Hazard Recognition

## Student Handout 11:

### Hazard Recognition Activity Worksheet

With your group, discuss the scenario on the visual and answer the following questions.

<b>Scenario Description</b>  <b>Setting:</b>   <b>Activity/Job:</b>   <b>Specific Location:</b>	<b>Keep in mind:</b> <ul style="list-style-type: none"><li>• Physical layout</li><li>• Equipment</li><li>• Tool condition</li><li>• Housekeeping</li><li>• Time of day</li><li>• Lack of procedures</li><li>• Unnecessary risks</li><li>• Use of protective equipment</li><li>• Handling of hazardous materials or substances</li><li>• People movement (actions/errors)</li></ul>	<b>See it.</b>  <b>Think it.</b>  <b>Do it.</b> 
<b>See it (Recognition)</b>  <b>What is unsafe?</b>	<b>Think it (Evaluation)</b>  <b>Why is it unsafe?</b>	<b>Do it (Control)</b>  <b>What must be done to make it safe?</b>

## LESSON 4:

## Student Handout 12:

Mark is really enjoying his Work Experience placement in a cabinet-making factory. The thing he likes best about the job is the friendly atmosphere—he gets along with his co-workers very well.

On his first day, Mark's supervisor instructs him on the proper use of the electrical bench saw. A few days later, Mark's buddy, Jim, tells him to ignore using the safety guard on the saw. "It's a pain and it slows you down," Jim tells Mark. Mark decides Jim is probably right since he's worked there longer, and he doesn't want to hurt Jim's feelings by ignoring his suggestion. Mark decides not to use the safety guard.

1. What are the five possible consequences of Mark's decision?
2. List three ways Mark could have handled Jim's remark differently?
3. What should Mark have done?

## Hazard Recognition

## Student Handout 13:

## Safe Work Practices

1. Describe five possible safety hazards you could encounter at a worksite.
2. Explain why a clean work area is apt to be a safe work area.
3. Identify a safeguard for each of the following body parts.
  - Eyes
  - Hands
  - Lungs
  - Feet
  - Ears
  - Head
4. List five of the most common types of injuries in the workplace.
5. Describe four strategies you can use to make your worksite a safe place to work.



## **Part A: Student Assessment**

### **Student Handout 12: Mark Ignores the Rules (Answer Key)**

1. What are the possible consequences of Mark's decision?
  - Serious injury—finger or fingers could be cut off
  - Reprimand from his supervisor
  - Delay in completion of Work Experience assignment
  - Possible removal from Work Experience program
2. How should Mark have handled Jim's remark differently?
  - Tell Jim that he intends to follow the safety rules
  - Tell Jim that he was trained and instructed to use the safety guard
  - Not comment on the remark and follow the rules anyway
3. What should Mark have done?
  - Used the safety guard
  - Listened to his supervisor, who gave him the proper instruction on use of the saw

### Student Handout 13: Safe Work Practices (Answer Key)

1. Describe at least five possible safety hazards you could encounter at a worksite.
  - Liquids spilled on floor
  - Hot objects
  - Heavy objects needing to be lifted
  - Faulty equipment
  - Lack of training
2. Explain why a clean work area is apt to be a safe work area.
  - Less likely an injury will occur
  - Debris will not get in the way of work
  - Tripping and slipping hazards
3. Identify at least one safeguard for each of the following body parts.
  - Eyes: safety goggles
  - Hands: safety gloves
  - Lungs: dust mask
  - Feet: steel-toed boots
  - Ears: earplugs
  - Head: hardhat
4. List the most common causes of injuries in the workplace.
  - Slips, trips, and falls; heavy, awkward lifting; improper use of equipment; faulty equipment; improper storage or use of chemicals; falling objects, bumping into objects; not using personal protective clothes and equipment
5. Describe what you can do to make your worksite a safe place to work.
  - Follow all safety procedures/rules.
  - Ensure you have adequate and proper training.
  - Ask for assistance if required.
  - Use the “See it, Think it, Do it” strategy at the worksite.

## LESSON 4:

### Hazard Recognition

### Assessment Tool 4: Hazard Recognition Assessment continued

## Part B: Teacher Assessment

Use the following chart to assess student work during this lesson.

The student is able to:	Does not meet expectations	Meets expectations	Fully meets expectations	Exceeds expectations
Identify the consequences of poor decision-making concerning safety in the workplace	Student isn't able to identify any consequences of poor decision-making	Student identifies some consequences of poor decision-making	Student identifies most or all consequences of poor decision-making	Student identifies and describes all consequences of poor decision-making without prompting
Identify appropriate communication strategies that can help ensure safety in the workplace	Student isn't able to identify any appropriate communication strategies	Student identifies some appropriate communication strategies	Student identifies most or all appropriate communication strategies	Student identifies and describes all appropriate communication strategies without prompting
Identify safety hazards associated with a workplace situation	Student isn't able to identify any safety hazards	Student identifies some safety hazards	Student identifies most or all safety hazards	Student identifies and describes all safety hazards without prompting
Identify personal protective equipment (PPE) for all major body parts	Student identifies two or fewer items of PPE	Student identifies some items of PPE	Student identifies most or all items of PPE	Student identifies and describes all items of PPE without prompting
Identify common causes of workplace injuries	Student identifies two or fewer causes of workplace injury	Student identifies some causes of workplace injury	Student identifies most or all causes of workplace injury	Student identifies and describes all causes of workplace injury without prompting
Propose strategies that can help make a workplace safe	Student isn't able to identify any safety strategies	Student identifies some safety strategies	Student identifies most or all safety strategies	Student identifies and describes all safety strategies without prompting
Teacher's comments:				



## Purpose

In this lesson, students learn about various types of safety equipment used to minimize exposure to hazards.

## British Columbia Planning 10 Curriculum Connections

Prescribed Learning Outcomes	Suggested Achievement Indicators
<i>It is expected that students will:</i>	<i>Students who have fully met the prescribed learning outcome are able to:</i>
<ul style="list-style-type: none"> <li>Analyse practices associated with work-related risk reduction and injury prevention (e.g., safety training, hazard recognition, risk management, communication)</li> </ul>	<ul style="list-style-type: none"> <li>Describe and discuss standard guidelines and procedures for reducing risk and injury in the workplace (e.g., following established safety guidelines such as those set out by the Workers' Compensation Board, knowing own abilities and limits, using safety and personal protective equipment, knowing where to go to address a problem)</li> <li>List and discuss primary causes of injury to young workers (e.g., inability to recognize and respond appropriately to hazards, lack of training)</li> <li>Create a list of factors that contribute to making workers and workplaces physically and emotionally safe (e.g., safety training programs, team building, harassment policies)</li> <li>Propose strategies to minimize workplace hazards</li> </ul>

## Teaching Strategies

- Direct instruction
- Small-group discussion
- Independent research

## Suggested Time

- 1 hour

## Materials and Resources

- Student Handout 14: Personal Protective Equipment*
- Teacher Resource 5: Personal Protection Equipment Answer Key*
- Six Hazard Recognition Visuals* (from Lesson 4)

## Assessment Strategies

- *Assessment Tool 5: Personal Protective Equipment Assessment*

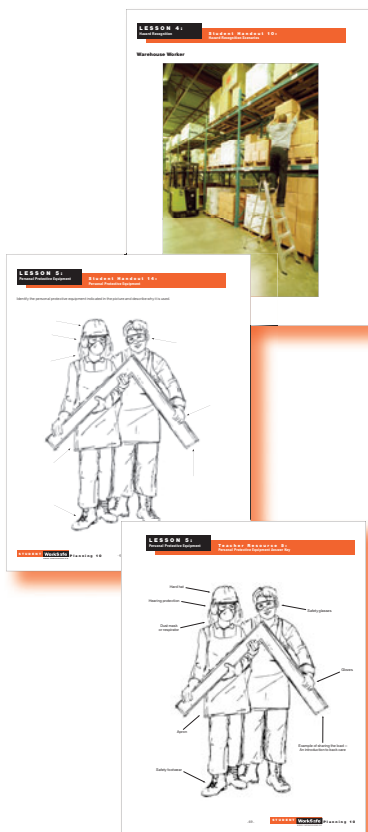
## Preparation

- Print copies of the student handouts and teacher resources and review them before teaching the lesson.

## LESSON 5: Personal Protective Equipment

## Instructional Plan

1. **Introduce** the subject by writing the letters “PPE” on the board and having students guess what they stand for. Help them by giving hints. Inform them that “personal protective equipment” is clothing and equipment used by workers to eliminate or minimize their exposure or contact with injurious physical, chemical, or biological agents.
2. **Review** the six hazard scenarios discussed in Lesson 4 (*Student Handout 10: Hazard Recognition Scenarios*). Have students list any personal protective equipment that could have been used by the workers shown in the scenarios to reduce the risk of injury. Suggested responses could include:
  - Non-skid, low-heeled footwear
  - Eye and ear protection
  - Covering of exposed skin, protective clothing
  - Secure ladder
  - Respirator
  - Gloves
  - Mask
  - Wrist rest
  - Anti-glare screen
  - Safety device (guard), guide on saw
3. **Point** out to students that employers are responsible for supplying the required safety gear and clothing. Young workers are responsible for supplying their own clothing to protect themselves from the natural elements, general purpose work gloves, safety foot wear, and safety head gear. Young workers are responsible for wearing and using PPEs properly. Additional information can be obtained from the WCB website (<http://tourism.healthandsafetycentre.org/s/AdditionalResources.asp?ReportID=3086>)
4. **Organize** the class into groups of four. Assign one pair of jobs to each student in each group. Ask students to brainstorm with their other group members all the items of personal protective equipment that might be used on each job:
  - A. Dishwasher, forestry worker
  - B. Construction worker
  - C. Nurse, warehouse worker
  - D. Gardener, lab technician
5. **Engage** students in discussion by having them share their answers with the class.
6. **Distribute** *Student Handout 14: Personal Protective Equipment*. Ask students to identify the personal protective equipment indicated in the picture and explain why it is being used. Refer to *Teacher Resource 5: Personal Protective Equipment Answer Key* to help you provide them with more information. Emphasize to students: **Accidents don’t have to happen. You have a choice.**



7. **Remind** students that personal protective equipment serves only to reduce the risk of injury—it does not eliminate the hazard. As they learned in Lesson 4 on hazard recognition, students can use the three steps of hazard control to reduce the chance of injury:

**See it.**



**Think it.**



**Do it.**



8. **Ask** students to choose a career (preferably one in which they are interested) to use as the basis for further research. Have them conduct online or print research to list 5–10 possible workplace hazards associated with that career and the types of personal protective equipment that can be used to minimize the risks associated with those hazards. Also ask them what other strategies might be useful in minimizing the risk (e.g., communication strategies; cleaning and organization strategies). Ask them to summarize their findings in a one-page report.





## LESSON 5: Personal Protective Equipment

## Instructional Plan continued

The worksheet is titled 'LESSON 5: Personal Protective Equipment' and 'Assessment Tool 5'. It contains a table with the following columns: Procedure, Safety, and Assessment. The table has three rows of data. Below the table is a section for 'Teacher Comments'.

### Assessment

- Have students submit the results of the research completed in step 7 for assessment. Use *Assessment Tool 5: Personal Protective Equipment* to record your assessment of each student's work in this lesson.

### Adaptation

- If pressed for time, leave out procedure 7 in the instructional plan. Assess student work on the basis of their group work and participation in discussions.

### Extension

- Have students present the results of their research in procedure step 7 to the rest of the class. You may also consider having them present their work to students in younger grades.



## LESSON 5:

Personal Protective Equipment

## Student Handout 14:

Personal Protective Equipment

Identify the personal protective equipment indicated in the picture and describe why it is used.

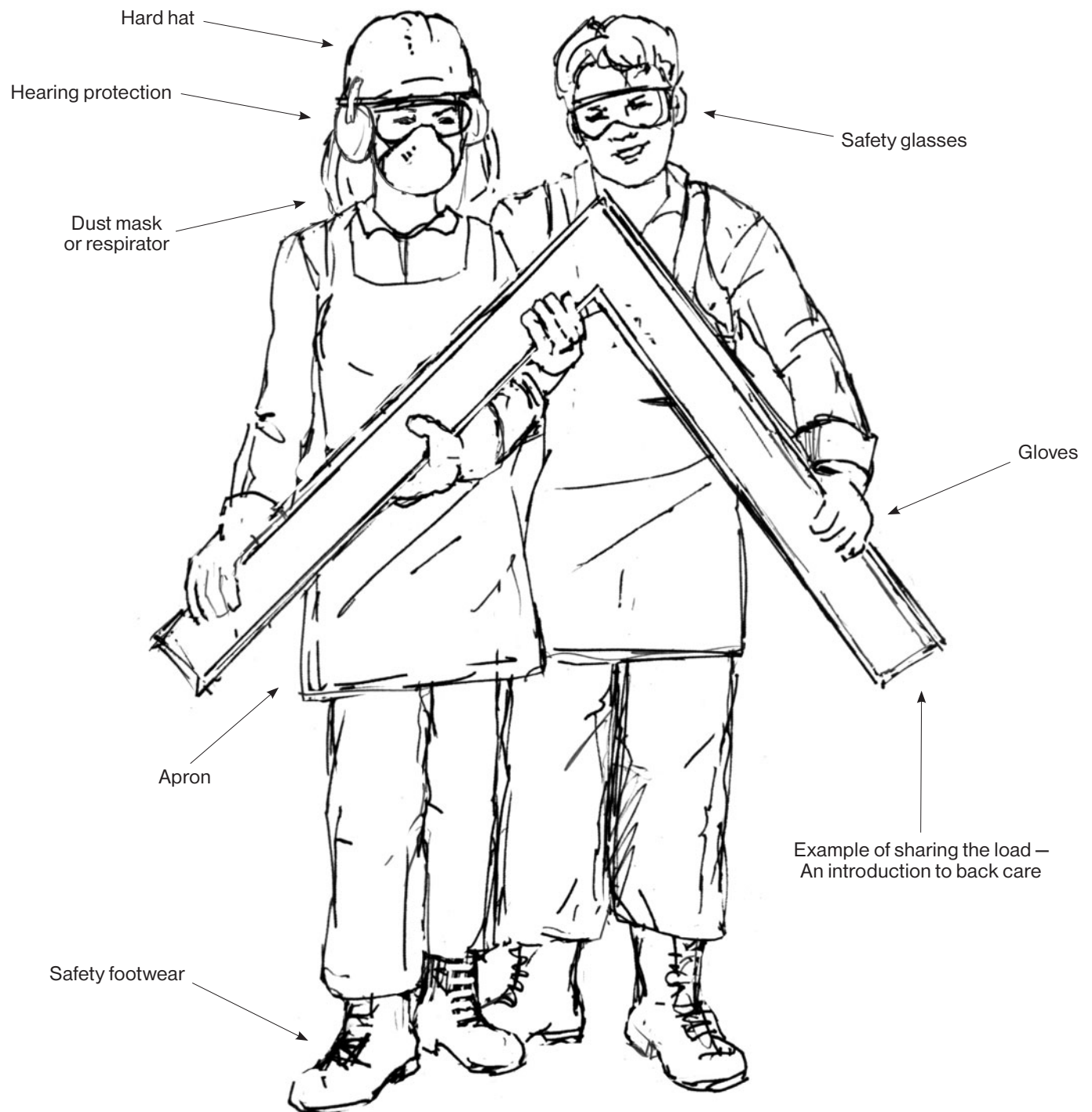


## LESSON 5:

### Personal Protective Equipment

## Teacher Resource 5:

### Personal Protective Equipment Answer Key



## LESSON 5:

### Personal Protective Equipment

## Assessment Tool 5:

### Personal Protective Equipment Assessment

Use the following chart to assess student work during this lesson.

The student is able to identify:	Does not meet expectations	Meets expectations	Fully meets expectations	Exceeds expectations
Identify workplace hazards associated with a particular career	Student is not able to identify workplace hazards	Student identifies some workplace hazards	Student identifies all relevant workplace hazards	Student identifies all workplace hazards and describes other careers where these hazards may occur
Identify personal protective equipment (PPE) that could be used to minimize the risks of those hazards	Student is not able to identify which PPE could reduce risks	Student identifies some PPEs that could reduce risks	Student identifies all relevant ways in which PPE could reduce risks	Student identifies all ways in which PPE could reduce risks and describes other careers where such PPEs could be used
Identify additional strategies that could be used to minimize the risk associated with those hazards	Student is not able to identify any additional strategies	Student identifies some additional strategies	Student identifies a full range of additional strategies	Student identifies a full range of additional strategies and describes why they are important

**Teacher's comments:**

## Purpose

In this lesson, students work in groups to analyse potential occupational health risks associated with a particular career sector. Specifically, they examine the following types of workplace health risks that are most relevant for young workers:

- Musculoskeletal injuries (e.g., back injuries, repetitive strain injuries)
- Heat stress
- Sun exposure
- Noise exposure
- Mineral and chemical hazards (e.g., lead, asbestos, cleaning agents, pesticides)
- Exposure to biological hazards (e.g., HIV, hepatitis, hantavirus, West Nile virus)

This lesson is designed to attune students to the various occupational health risks they may face when working in part-time, casual, or temporary seasonal jobs. While recognizing that employers have a responsibility to maintain working conditions conducive to worker health, this lesson provides students with information that will enable them to become aware of risks and take personal responsibility for their health on the job.

## British Columbia Planning 10 Curriculum Connection

Prescribed Learning Outcomes	Suggested Achievement Indicators
<i>It is expected that students will:</i>	<i>Students who have fully met the prescribed learning outcome are able to:</i>
<ul style="list-style-type: none"><li>• Analyse practices associated with work-related risk reduction and injury prevention</li></ul>	<ul style="list-style-type: none"><li>• Describe and discuss standard guidelines and procedures for reducing risk and injury in the workplace (e.g., following established safety guidelines such as those set out by the Workers' Compensation Board, knowing own abilities and limits, using safety and personal protective equipment, knowing where to go to address a problem)</li><li>• Propose strategies to minimize workplace hazards</li></ul>
<ul style="list-style-type: none"><li>• Analyse factors that influence health</li></ul>	<ul style="list-style-type: none"><li>• Identify and describe examples of social and environmental influences on health (e.g., family, peers, media, technology, air and water quality)</li></ul>
<ul style="list-style-type: none"><li>• Analyse health information for validity and personal relevance</li></ul>	<ul style="list-style-type: none"><li>• Collect and present information on health topics (e.g., nutritional supplements, disordered eating, depression, tobacco use prevention and cessation, prevention of unplanned pregnancy, substance misuse, sun protection, allergies, food safety, proper back care, ergonomics) from a variety of sources such as personal interviews, the Internet, and community organizations</li></ul>

## LESSON 6:

### Occupational Health

## Lesson at a Glance

continued

- |   |   |
|---|---|
| <ul style="list-style-type: none"><li>Evaluate the potential effects of an individual's health-related decisions on self, family, and community</li></ul> | <ul style="list-style-type: none"><li>Create a list of health issues facing adolescents (e.g., nutritional choices, sports safety, substance misuse, self-esteem, depression, suicide, body image, sexual decision-making, sexually transmitted infections, workplace health and safety, air and water quality, Internet safety)</li><li>Describe practices that can assist individuals in attaining and maintaining short-term and long-term personal health (e.g., stress management, appropriate nutritional choices, regular physical activity, adequate rest, taking opportunities for enjoyment and personal growth, abstaining from harmful substances, regular medical and dental visits)</li></ul> |
|---|---|

### Teaching Strategies

- Group work
- Information analysis

### Suggested Time

- 2 hours

### Materials and Resources

- Student Handout 15: Strains and Sprains*
- Student Handout 16: Heat Stress*
- Student Handout 17: Sun Exposure*
- Student Handout 18: Noise Exposure*
- Student Handout 19: Exposure to Mineral and Chemical Hazards*
- Student Handout 20: Exposure to Biological Hazards*

### Assessment Strategies

- Assessment Tool 6: Occupational Health*

### Preparation

- Quickly review all student handouts and print copies for your students (at least one per group, though you may wish to supply one per student).
- Print one copy per student of the Student Self-Assessment Checklist and one copy per group of the Group Presentation Peer Assessment Tool.



1. **Ask** students, as a class, to brainstorm a list of jobs (e.g., part-time, temporary) they may already have had or they might aspire to have in the near future. Record their feedback on the board, and use the list as a springboard to introduce the following five sectors in which many British Columbia young people find entry-level employment:

- Retail
- Hospitality industry (hotels, restaurants)
- Construction
- Agriculture and forestry
- Performing arts (including music, theatre, film, and television).

(Note: You can modify this list of sectors to reflect jobs commonly available to students in your community.)

2. **Organize** students into five groups, one group for each of these sectors. Students may select a group to belong to based on their particular interest, but this approach is not required for the activity to be successful.
3. **Give** every group one copy of each of the six student handouts. The task for each group is to review the material they have been given and prepare summarized responses (in point form) to the following two questions:
  - What factors can affect the health of young workers in your sector?
  - What can you do to protect yourself from the harm associated with each of these causes?

Post the questions on the board to assist students.

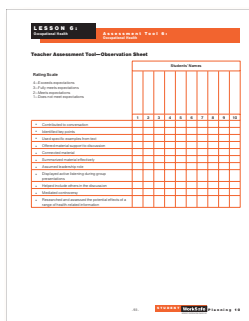
As students work in their groups to analyse the information in the handouts, help them to consider health risks that might be less obvious. For example:

- Workers in the performing arts sector might be exposed to mineral and chemical hazards (e.g., lead, asbestos, dust) when building sets and working on film locations.
- Workers in the construction industry might be exposed to asbestos during renovations or demolition work, or to heat stress when working outside or near heat-producing equipment.
- Workers in the hospitality and service industries might be exposed to hazardous noise or heat levels from kitchen or cleaning equipment.
- Any workers working outside for any length of time are at risk of sun exposure.
- Workers in **all** sectors have a potential to suffer a musculoskeletal injury, particularly from lifting and using repetitive motion.



## LESSON 6: Occupational Health

## Instructional Plan continued



4. **Review** with students the criteria for assessing their work (see *Assessment Tool 6: Occupational Health*).
5. **Ask** each group to present their findings, given a set time limit (e.g., five minutes). To keep presentations brief and focussed, after each group has given an overview of their answer to the first question, you might ask them to focus on only one or two aspects of their research. Since musculoskeletal injuries are a concern for all sectors, for example, only one presenter need deal with the negative consequences and preventive measures for that factor. You might rather have the various presenters focus on information that is most particular to their sectors, for example:
  - For the *retail sector*, the group might focus on musculoskeletal injuries
  - For *hospitality or other service industries*, the group might focus on blood-borne diseases
  - For *construction industry*, the group might focus on hazards associated with dust or hantavirus
  - For *agriculture and forestry*, the group might focus on heat stress and sun exposure
  - For *performing arts*, the group might focus on noise exposure
6. **Conclude** the lesson by highlighting the following two points for students:
  - Although it is your employer's responsibility to offer you protection from health hazards and ensure you have adequate training in health procedures, it is as important that **you** recognize these occupational health hazards so that you can take steps to protect yourself. That way, should you be exposed to a health hazard at work and become ill, you will know what to do to prevent it from happening again.
  - The effects of exposure to hazardous substances or conditions will not always result in you developing an occupational disease immediately. So, what you do at work today may affect your health much later in life. Some illnesses (such as certain forms of cancer or respiratory disease) may take years to become apparent.



## LESSON 6: Occupational Health

## Instructional Plan continued

**Teacher Assessment Tool—Observation Sheet**

**Student Name**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. Understands the importance of occupational health and safety.																				
2. Understands the importance of occupational health and safety.																				
3. Understands the importance of occupational health and safety.																				
4. Understands the importance of occupational health and safety.																				
5. Understands the importance of occupational health and safety.																				
6. Understands the importance of occupational health and safety.																				
7. Understands the importance of occupational health and safety.																				
8. Understands the importance of occupational health and safety.																				
9. Understands the importance of occupational health and safety.																				
10. Understands the importance of occupational health and safety.																				

### Assessment

- At the outset of the lesson, review with students the criteria identified for assessment in *Assessment Tool 6: Occupational Health*. Focus on those criteria related to assessing the work of the group as a whole. While students work at their presentations, use the Observation Sheet to record your assessments of the contributions of individual students (using one Teacher Assessment Tool per group). At the end of the presentations, distribute the Group Presentation Peer Assessment Tool and the Student Self-Assessment Checklist and have students complete an assessment of their individual and group work. Collect the assessment tools and use them to mediate or qualify your own assessment of the students' work. The results of this assessment are best used for formative purposes (assessment for learning), but can also be used for summative purposes (assessment of learning), if you determine a scheme for weighting the results.

### Extension

- Have students conduct additional research about occupational health issues in general or in relation to specific sectors. Students can begin by visiting the youth worker section of the WCB website (<http://youngworker.healthandsafetycentre.org/s/IndustryProfiles.asp>) and reviewing the sectors profiled. Encourage students to access additional occupational health information from local employers and other online resources, and to compare and summarize this information. Students might present their information in the form of a poster illustrating the occupational health concerns for their chosen sector.



Strains and sprains (known as musculoskeletal injuries) are the most common type of work-related injury. Musculoskeletal injury (MSI) is a term used to describe an injury of the muscles, tendons, ligaments, and joints.

Muscle **strains** usually happen when a muscle is stretched too far and becomes torn. Muscle **sprains** result when the ligaments that hold bones together are stretched or torn as a result of being twisted.

Strains to the back, neck, shoulder, elbow, wrist, or leg are common and can arise from heavy, awkward, or repetitive work. Muscle strains can occur suddenly or develop over time.

## Signs and Symptoms of MSI

- A sign can be observed. Swelling, redness, and the inability to move a body part normally can be signs of MSI.
- A symptom can be felt, but not observed. Pain, numbness, and tingling can be symptoms of MSI.
- Don't ignore any of these signs and symptoms! Recognizing and reporting them as soon as possible—and seeking medical attention right away—can help them from getting worse.
- While experiencing some muscular aches is normal when a person first starts a new job (especially one involving physical labour), if the ache persists and becomes painful, this discomfort is **not** normal and should be reported.

## Potential Health Effects

If early signs or symptoms of MSI are ignored, they can progress into more serious problems such as tendonitis or bursitis. These conditions can have long-term effects on a person's health, work, recreational options, and other aspects of life. Problems may include persistent pain, pain with movement, or an inability to move limbs normally.

## Is Back Pain Different from a Back Strain?

Yes! Up to 60 percent of young people will have **back pain** by the time they reach age 18—that 60 percent will also likely experience back pain again as adults, to the point of missing work or having to visit a doctor. **Back strain** resulting from heavy lifting or working in an awkward position are also common, but generally affect far fewer young people than back pain.

### Fact: Back pain is not just an “old person’s” complaint.

A 12-year-old has a 10–15 percent chance of experiencing back pain. An 18-year-old has a 50–60 percent chance of experiencing back pain.

### Fact: Back pain is one of the biggest reasons for missed work.

Back injuries are the second most common reason for missed work (the common cold is the first).

### Fact: Eight out of every 10 people will see a doctor for back pain during their life.

This means you have an 80 percent chance of suffering back pain—unless you work smarter.

### Fact: Workers or not, 70–90 percent of all people will have some significant low-back problem during their life.

Two common causes of low-back problems in students are carrying backpacks overloaded and carrying them improperly. It's estimated that 96 percent of students carry backpacks.

Back pain in teens or adults can result from many things. Some reasons include doing awkward or heavy lifting, being overweight, carrying heavy loads (e.g., a backpack), or spending too much time in front of a computer (especially when the workstation is not well set-up to fit the needs of an individual).

## Strains and Sprains to the Shoulder, Arm, Elbow, and Wrist

Teens work in a variety of workplaces, serving food and bussing tables, washing dishes, mopping floors, cashiering, stocking shelves, using tools on a construction site, and planting trees. All of these jobs can be very repetitive, awkward, or strenuous on the shoulders, arms, and wrists.

**Fact: High-repetition jobs pose a greater risk than low-repetition jobs.**

**Fact: Jobs that are heavy and repetitive are more likely to cause harm than jobs that are not.**

## What Causes MSI?

The hazardous activities that contribute to the risk of MSI are called risk factors. A risk factor is something that may cause or contribute to an injury. The risk factors for MSI include job-related factors, awkward postures, and repetitive movements of long duration.

- **Job-related factors**—The main risk factors for MSI (especially lower back problems) are the physical demands of a job (e.g., forceful exertions during physical work, handling loads—especially if the load is heavy, awkward, slippery, cold, hot, alive, unbalanced, or wet), as shown below.
- **Awkward postures** (e.g., reaching down, reaching overhead, holding the neck in a bent position, sitting at a poorly organized workstation), as shown below.
- **Repetitive movements of long duration** (e.g., working at a cash register, using tools, using the computer for prolonged periods of time), as shown below.

Other risk factors for MSI may include:

- **Environmental conditions of the workplace**, including lighting, temperature, and air quality.
- **Personal factors**, including personal work style, age, smoking, height, weight, habits, and education.

It is important to recognize such factors in the workplace and be aware of what puts you at a high risk of injury. For example, if you must bend awkwardly to lift a heavy object because you are working in a cramped area, you will be at a greater risk of MSI than someone who uses a mechanical lifting device or has enough room to use safe lifting procedures.

## Prevention Practices

While employers have the primary responsibility for protecting the safety and health of their workers, you are also responsible for following safe work practices outlined by your employer.

At work, any work-related injuries and signs or symptoms of MSI must be reported without delay. Don't ignore early signs and symptoms of MSI. Treatment may be required or steps may need to be taken to prevent the injury from getting worse.

If a worker reports an injury that needs medical attention or an unsafe condition that could lead to injury, the employer must investigate. An investigation will help to identify risk factors that contributed to the injury and lead to workplace changes to eliminate or minimize the risk factors.

Some ways to help prevent or control the risk of MSI include the following:

- Limit lifting by hand. Use equipment such as hand carts, trolleys, forklifts, and pallet jacks to help lift and transport products.
- Do not manually lift heavy loads alone; get help.
- Do not overdo it. Be aware of being pressured to do something that may cause injury.
- Minimize the distance the load must be moved or carried.
- Avoid manual lifting tasks for items that lie below knee height (instead, use scissor lifts, pallet jacks, or other equipment).
- Avoid manual lifting tasks for items that lie above shoulder height (instead, limit shelf heights, improve storage practice, or be raised up to the load).
- Avoid handling heavy or unbalanced objects while sitting down (e.g., stand so that stronger muscles are used).
- Improve your grip on the load (e.g., fix good handles on containers; add clamps or other devices to improve grip; use gloves).
- Stack items used most frequently at a convenient waist level.
- Use a stool or ladder to access items on shelves. Do not stand on chairs or boxes that might tip over.
- Lighten the load to be lifted (e.g., by separating component parts; by encouraging employer to purchase smaller and therefore lighter cartons of stock).
- When going up or down stairs, use handrails, avoid undue speed, and carry only items that do not obstruct vision.
- Avoid grasping vibrating tools with a hard grip.
- Use a desk, chair, mouse, etc. that is well designed and appropriate to the task.
- Reduce the total time spent pushing or pulling, or break the total time into smaller blocks of time doing that task.
- Recognize the potential for MSIs even in tasks that seem harmless.
- Use proper lifting techniques when performing manual lifts to minimize the risk of injuring the back. Keep in mind, however, that a heavy load can cause an injury even with perfect technique.

## Safe Lifting Techniques

To help prevent injuring your back, use these suggested lifting techniques:



- Warm up your muscles by stretching.
- Size up the load and ask yourself:
  - Is the load an awkward size or shape? Is it too heavy for one person?
  - Do I need help?
  - Do I need a tool to assist me?
- Plan your route: make sure it is free of tripping and slipping hazards.
- Hug the load: keep it close to your body.
- Avoid overreaching.
- Avoid twisting your back: pivot with your feet.
- Squat down; do not bend at the waist.
- Use your legs to do the lifting.
- Use smooth movements.
- Acknowledge your limitations; get help when you need it!
- Use a wide stance.
- Get a good grip; gloves may help.

### For more information

- WCB publication *Back Talk*:  
[http://www.worksafebc.com/publications/health\\_and\\_safety\\_information/by\\_topic/assets/pdf/back\\_talk.pdf](http://www.worksafebc.com/publications/health_and_safety_information/by_topic/assets/pdf/back_talk.pdf)
- WCB publication *How to Make Your Computer Workstation Fit You*:  
[http://www.worksafebc.com/publications/health\\_and\\_safety\\_information/by\\_topic/assets/pdf/comptr\\_wrkstn.pdf](http://www.worksafebc.com/publications/health_and_safety_information/by_topic/assets/pdf/comptr_wrkstn.pdf)
- WCB publication *Understanding the Risks of MSI*:  
[http://www.worksafebc.com/publications/health\\_and\\_safety\\_information/by\\_topic/assets/pdf/msi\\_workers.pdf](http://www.worksafebc.com/publications/health_and_safety_information/by_topic/assets/pdf/msi_workers.pdf)
- Washington State Department of Labor and Industries publication *Ergonomics for School Children and Young Workers*:  
[www.lni.wa.gov/WorkplaceRights/files/ErgoForSchoolChildrenandYoungWorkers.pdf](http://www.lni.wa.gov/WorkplaceRights/files/ErgoForSchoolChildrenandYoungWorkers.pdf)
- To find out more on ergonomics for schools, visit these websites:  
<http://www.ergonomics4schools.com/>  
<http://ergo.human.cornell.edu/MBergo/intro.html>  
<http://www.aota.org/featured/area6/links/link02af.asp>  
[http://www.education-world.com/a\\_tech/tech076.shtml](http://www.education-world.com/a_tech/tech076.shtml)  
<http://education.umn.edu/kls/ecee/default.html>  
<http://www.ergoweb.com/news/detail.cfm?id=552>

Many jobs require work in hot environments, both outdoors and indoors. Working in the heat and doing heavy physical work can affect the body's cooling system. If the body gains heat faster than it is able to cool itself, body temperature rises and heat stress occurs. When working in hot conditions, be adequately prepared to deal with heat stress. It's an employer's responsibility to make sure that workers are trained properly in how to prevent heat stress. Workers should be able to recognize the same early symptoms of heat stress in fellow workers.

## Signs and Symptoms of Heat Stress

- Onset of a headache or nausea
- Decreased efficiency, co-ordination, and alertness
- Increased irritability
- Light-headedness or dizziness
- Fainting
- Hands, feet, and ankles swelling, usually one to two days after first exposure

## Health Problems Associated with Heat Stress

If heat stress is not recognized and treated in the early stages, more serious and even fatal conditions may quickly develop, such as heat exhaustion and heat stroke.

## Prevention Practices

Some things you can do to prevent heat stress include the following:

- Learn to recognize the signs and symptoms of heat stress in yourself and co-workers. Avoid working alone.
- Acclimatize your body (gradually expose yourself to heat at work).
- Drink plenty of water (one glass every 20 minutes). Avoid caffeine and alcohol.
- Wear light-coloured, loose-fitting clothing made of breathable fabric (such as cotton).

It is the employer's responsibility to ensure that workers are properly trained in how to prevent heat stress. Some of the things an employer can do to help prevent heat stress are to encourage workers to:

- Take rest breaks in a cool or well-ventilated area. Take more breaks during the hottest part of the day or when doing hard physical work. Allow the body to cool down before beginning again.
- Schedule work to minimize heat exposure. Do the hardest physical work during the coolest part of the day.

**Remember: If there is any doubt about you or your co-worker's condition, get medical advice.**

## For more information

- WCB pamphlet *Preventing Heat Stress at Work*:  
[http://www.worksafebc.com/publications/health\\_and\\_safety\\_information/by\\_topic/assets/pdf/heat\\_stress.pdf](http://www.worksafebc.com/publications/health_and_safety_information/by_topic/assets/pdf/heat_stress.pdf)
- WCB regulations and guidelines related to heat stress:  
<http://regulation.healthandsafetycentre.org/s/Part7.asp>  
<http://regulation.healthandsafetycentre.org/s/GuidelinePart7.asp>

Over the long term, exposure to harmful Ultraviolet A (UVA) and Ultraviolet B (UVB) rays from the sun can cause sunburn and eventually lead to skin cancer. Workers who are working outdoors without proper protection are at risk of unhealthy exposure to the sun.

## Protection Practices

- Reduce exposure to the sun between 11:00 a.m. and 4:00 p.m. when harmful UVA and UVB radiation is most intense.
- Wear sunglasses with 100 percent UVB protection.
- Wear clothing with long sleeves and long pants.
- Wear a hat.
- Always wear sun screen. The B.C. Cancer Agency recommends that you use broad-spectrum sunscreen of SPF (Sun Protection Factor) #15 or higher.
- Even on cloudy days, use protection from the sun. The ultraviolet light that causes sunburns can penetrate light cloud cover, fog, and haze.

## For more information

- B.C. Cancer Agency:  
<http://www.bccancer.bc.ca/PPI/TypesofCancer/SkinNonMelanoma/default.htm>  
<http://www.bccancer.bc.ca/PPI/TypesofCancer/Melanoma/default.htm>



One-quarter of all British Columbia's workers are exposed to occupational noise loud enough to damage their hearing. Noise is the most common health hazard in industry. Excessive noise damages tiny sensory cells deep inside the ear. Hearing loss can occur so gradually that you may not realize it is happening. Noise-induced hearing loss is permanent—it can't be cured or improved.

## How Much Is Too Much?

There are maximum limits for noise exposure in the workplace, both for loudness and duration. A simple way to test the noise level is to stand at arm's length from someone and talk to him or her. If you must raise your voice to be heard, the noise around you is probably excessive.

The length of exposure to noise is as critical as the loudness. Continuous noise throughout a shift is more damaging than a few minutes at a time. If your ears ring, or sounds seem muffled after the noise stops, your hearing has been affected, at least temporarily.

A noise level greater than 85 decibels (dBA) averaged over eight hours can damage hearing. Work-related noise loud enough to cause damage doesn't just occur in heavy industrial and construction worksites. Potentially harmful noise can also come from a variety of less obvious sources, including:

- Kitchen equipment (e.g., blenders)
- Gardening and landscape equipment (e.g., lawn mowers, leaf blowers)
- Musical instruments
- Recorded music or movies
- Public address and amplification systems
- Cleaning equipment (e.g., vacuum cleaners)
- Traffic

## Protection Practices

It's an employer's responsibility to reduce workplace noise. Workplace design is the best way to decrease noise exposure. The source of noise can be housed in sound-muffling enclosures (for example, enclosures for air compressors or punch presses). If this isn't practical, a worker can be enclosed in a booth that protects her or him from noise (as, for example, headrig sawyers and edger operators are in sawmills). Another way to reduce noise is to install sound-absorbent materials on walls or ceilings near noisy machinery. Workers' exposure to noise can also be reduced by using job rotation to decrease the time they spend in noisy areas.

Until noise can be reduced to safe levels, an employer must provide workers with appropriate hearing protection, at no cost. Hearing protection equipment includes earmuffs, earplugs, and earcaps. Different types of protection are required depending on factors such as the amount of noise, the temperature, the need to communicate on the job, and the availability of other personal protective equipment on the job.

## For more information

- WCB publication *Sound Advice*:  
[http://www.worksafebc.com/publications/health\\_and\\_safety\\_information/by\\_topic/assets/pdf/sound\\_advice.pdf](http://www.worksafebc.com/publications/health_and_safety_information/by_topic/assets/pdf/sound_advice.pdf)
- WCB publication *Hear for Good*:  
[http://www.worksafebc.com/publications/health\\_and\\_safety\\_information/by\\_topic/assets/pdf/hear\\_for\\_good.pdf](http://www.worksafebc.com/publications/health_and_safety_information/by_topic/assets/pdf/hear_for_good.pdf)

Mineral and chemical hazards discussed here: asbestos, lead, dust, detergents and cleaning products, and pesticides.

## Asbestos

Asbestos is a fibrous material that was once used in many products because it added strength as well as heat and chemical resistance. Until the late 1970s, more than 3000 products containing asbestos were used in building construction. Although few products containing asbestos are used in construction today, the materials used in older buildings still very likely contain asbestos.

Today the many hazards of asbestos are well known. If you do not take proper precautions when you work around asbestos, you may develop serious health problems years from now.

Asbestos is most hazardous when it is “friable” (dry and easily crumbled or powdered by hand). Once crumbled, asbestos releases fibres into the air. When you inhale those fibres, they get into the deepest regions of your lungs—the alveoli—and stay there forever because asbestos is not easily broken down by the body. The accumulation of asbestos in the lungs could cause lung cancer or other serious diseases many years from now.

It is, however, important to use caution even when working with non-friable materials that contain asbestos (such as vinyl-asbestos floor tile or asbestos cement products), because they have the potential to become friable if they are handled in an aggressive manner (e.g., sanded with a power sander).

Some asbestos-containing materials that were once commonly used in residential construction:

- Pipe insulation
- Door gaskets
- Furnace insulation
- Vinyl, asphalt, or rubber floor tiles
- Acoustical tile

## Health Problems Associated with Exposure to Asbestos

The health effects associated with exposure to asbestos are very serious and many are fatal.

- Asbestosis is a lung disease that results from prolonged exposure to asbestos dust. Once the fibres get into the alveoli—the very small part of the lungs—they stay there. Gradually the lungs become scarred and stiff, and this makes it difficult for a person to breathe.
- Lung cancer may be caused by asbestos fibres in the lung. The combination of exposure to asbestos and smoking dramatically increases the likelihood of developing lung cancer.
- Mesothelioma is a rare but very deadly form of cancer that is caused by exposure to asbestos. Mesothelioma affects the lining of the chest or the abdominal cavity.

## Protection Practices

To control asbestos exposure, you must be aware of the work processes that put you at risk of asbestos exposure, and you must take the proper steps to reduce or eliminate exposure.

Jobs that could expose a worker to asbestos:

- Removing asbestos-containing pipe insulation
- Removing asbestos-containing vermiculite insulation

- Cleaning up renovation sites where asbestos-containing building materials have been removed
- Sawing, scraping or sanding old building materials that contain asbestos (such as old dry-wall that contains asbestos)
- Removing old plumbing fixtures

If you have to do work that could expose you to asbestos, it is your employer's responsibility to make sure you are trained properly on how to protect yourself from exposure to asbestos. It is your responsibility to follow safe work practices that are established by your employer for your protection.

### For more information

- WCB publication *Safe Work Practices for Handling Asbestos*:  
[http://www.worksafebc.com/publications/Health\\_and\\_Safety\\_Information/by\\_topic/assets/pdf/asbestos.pdf](http://www.worksafebc.com/publications/Health_and_Safety_Information/by_topic/assets/pdf/asbestos.pdf)

## Lead

The paint used in older buildings often contained lead. If you have to do work in a building or on another type of structure that was built before 1975, you could be exposed to lead when you are removing lead-based paint.

There are two ways that lead can enter your body:

- You can breathe in lead dust or fumes while you are sanding painting; or
- You can drink or eat food contaminated with lead, or transfer lead dust from your skin to your food.

Once lead is in your bloodstream, it is carried throughout the body and stored in various body tissues, mostly in your bones. The body can naturally get rid of lead over time; however, if lead enters your body faster than your body can get rid of it, it may build up or accumulate.

### Health Problems Associated with Lead Exposure

A person suffering high lead levels may experience a general feeling of tiredness and weakness, general aches and pains, headaches, loss of weight, abdominal pain, and possible constipation. These and other symptoms of lead exposure may take a long time to develop. As well, workers with similar exposures to lead may experience different symptoms, or the same symptom but at different severity.

Possible health effects an adult may experience as a result of lead exposure include:

- Anemia
- Nerve damage causing muscle weakness
- Kidney damage
- High blood pressure
- Reproductive problems in both men and women

A developing fetus, when the mother is exposed to even fairly low levels of lead, may experience low birth weight and developmental delays. If a woman has been exposed before pregnancy to a significant amount of lead, then during pregnancy the lead may come out of the body tissues where it is stored and enter the blood and the fetus. Lead is also excreted in breast milk.

## Protection Practices

Health problems from lead exposure can be prevented. The solution is to minimize the amount of lead your body absorbs through being breathed in and ingested.

Be aware of the work processes you are doing that increase your risk of being exposed to lead and take the proper steps to reduce or eliminate your exposure. It is your employer's responsibility to develop and implement a plan to make sure you are not exposed to too much lead.

If there is lead exposure in your workplace, make sure you remove your work clothing and shower before going home! The other members of your family—and especially children and pregnant women—will be exposed if you take lead dust home on your work clothes, foot wear, skin, or hair.

## For more information

- [http://www.worksafebc.com/publications/health\\_and\\_safety\\_information/by\\_topic/assets/pdf/lead.pdf](http://www.worksafebc.com/publications/health_and_safety_information/by_topic/assets/pdf/lead.pdf)
- <http://www.cdc.gov/niosh/topics/lead/>

## WCB regulations

- Part 5 of the Occupational Health and Safety Regulation, governing exposure to chemical and biological substances:  
<http://regulation.healthandsafetycentre.org/s/Part5.asp>
- Part 6 of the Occupational Health and Safety Regulation, governing exposure to lead:  
<http://regulation.healthandsafetycentre.org/s/Part6.asp>

## Dust

Dust can be produced from a whole range of work-related activities including sanding, sawing, paint removal, and sweeping.

Depending on its content, can be simply a nuisance, or it can actually cause harm. When dust is in the air you breathe, it gets inhaled into your respiratory tract. Very small particles of dust can make their way into the alveolar region of your lungs where, depending on the particles' chemical characteristics, they can cause diseases. Even dust from “natural” sources—such as dust from wood or flour—can be harmful to your health.

## Health Problems Associated with Exposure to Dust

A person exposed to dust may experience eye, nose, throat, and respiratory tract irritation, coughing, and phlegm production. If the dust you are working with contains substances such as asbestos, lead, silica, western red cedar, or other hazardous substances, you could also develop long-term health problems such as breathing difficulties, asthma, or lung cancer. Smoking increases the risk of developing these health conditions.

## Protection Practices

- Do not sweep dry dust. To prevent dust from becoming airborne, clean dusty surfaces with water, wet mops, wet rags, and vacuums that have high-efficiency particulate air filters.
- Do not use compressed air to clean up dust.
- Know what is in the dust you are working with!

To control your exposure in the workplace to dust that may contain a hazardous substance, be aware of the work processes you are doing that create dust and take the proper steps to reduce or eliminate your exposure. It is your employer's responsibility to develop and implement a plan to make sure you are not exposed to too much dust that may contain a hazardous substance.

### For more information

- WCB publication *Breathe Safer*:  
[http://www.worksafebc.com/publications/Health\\_and\\_Safety\\_Information/by\\_topic/assets/pdf/breathe\\_safer.pdf](http://www.worksafebc.com/publications/Health_and_Safety_Information/by_topic/assets/pdf/breathe_safer.pdf)

### WCB regulations

- Part 5 of the Occupational Health and Safety Regulation, governing exposure to chemical and biological substances including dust:  
<http://regulation.healthandsafetycentre.org/s/Part5.asp>
- Part 8 of the Occupational Health and Safety Regulation, outlining the legal requirements covering personal protective equipment and clothing, including respirators:  
<http://regulation.healthandsafetycentre.org/s/Part8.asp>

## Detergents and Cleaning Products

Substances that are used for cleaning in a variety of jobs (e.g., hotels, restaurants, construction, retail) are often hazardous.

Make sure you know the risks of the cleaning products you are using. Cleaning products in the workplace should be labelled with information about the safe use of the product. They should also come with a Material Safety Data Sheet (MSDS). The MSDS will give you information on the hazards that may be presented by the product and steps you can take to protect yourself from any risks associated with the product.

### Health Problems Associated with Exposure to Detergents and Cleaning Products

One of the most common health effects associated with working with detergents or other cleaning products is dermatitis. Many detergents and cleaning products irritate or attack the body's protective organ—the skin—and weaken its job as a barrier.

## Pesticides

Insecticides are a type of pesticide used to kill or control insects. When *organo-phosphate insecticides*—commonly called OPs—enter the human body, they impair the body's ability to control normal nerve and muscle function.

OPs are used:

- On farms and in orchards to control insects that damage crops
- On farms and ranches to control pests that infest animals and farm buildings
- In veterinary products used to control pests that infest livestock and pets
- In nurseries to control pests that attack greenhouse crops and bedding and ornamental plants
- In the forest industry to protect trees and tree seedlings
- In warehouses, retail stores, schools, office towers, and other buildings to control termites, carpenter ants, and other pests

Most OPs have strong odours that smell like garlic. They are very toxic and can enter the body:

- Through the skin—The skin is the most likely way for OPs to enter the body. They can be absorbed not only through skin that is cut or scraped, but also through intact skin. Exposure through the skin often occurs with spills or splashes during mixing or spraying. Eyes and genital areas absorb pesticides more easily than hands and forearms.
- Through the lungs—The risk of inhaling OPs is higher if they tend to remain in the air after application. Inhalation of vapours, fine dusts, and fogs are the main concerns. The risk of inhaling OPs may be very high in greenhouses, mushroom barns, warehouses, or other enclosed areas where ventilation is poor.
- By swallowing—The most severe poisonings often result when OPs are swallowed. The stomach and intestines absorb pesticides easily. You can ingest OPs if you eat, drink, or smoke in a contaminated area, or don't wash your hands before doing any of these things.

### Protection Practices

You must wear personal protective equipment to use OPs safely. What you need depends on how toxic the OP is, the type of formulation (solid, liquid, or gas), and the risk of exposure. For example:

- If you are working with concentrated OPs as a mixer or a loader, you need goggles, gloves, a respirator, and protective clothing to guard against splashes, spills, and vapours.
- If you are working as a flagger involved in aerial applications, you could be exposed to spray drift and should protect your eyes and all of your skin.

No one material provides protection against all types of OPs. Check the OP product label for the type of glove recommended for use when handling the product. If the label doesn't tell you, ask your boss or contact the supplier. How often you need to replace your gloves depends on the gloves' thickness, how well they have been taken care of, and their amount of use. Check gloves regularly for wear and tear. Don't use a glove that has a hole or worn spots.

Wear 100 percent cotton coveralls and other clothing, or an outer rain or spray suit. (Rain or spray suits worn during pesticide applications should be waterproof, tear-resistant, and resistant to the solvent used in the OP.) Pesticides pass through polyester; cotton absorbs them. Check the labels on your clothing to be sure that they are 100 percent cotton, not a cotton-polyester blend.

When using any OP, you should at minimum wear a long-sleeved shirt, long-legged trousers, socks, waterproof boots, and gloves.

In addition to wearing personal protective equipment, you should also practise good hygiene, including washing your hands:

- After handling OPs
- Before eating, drinking, or using the toilet
- Before going home

### For more information

- Part 6 of the Occupational Health and Safety Regulation, governing exposure to pesticides: <http://regulation.healthandsafetycentre.org/s/Part6.asp>
- British Health and Safety Executive: <http://www.hse.gov.uk/>
- U.S. Occupational Safety and Health Administration: <http://www.osha.gov/>
- U.S. National Institute for Occupational Safety and Health: <http://www.cdc.gov/niosh/homepage.html>
- European Agency for Safety and Health at Work: <http://europe.osha.eu.int/>
- International Labour Organization: <http://www.ilo.org/public/english/protection/safework/index.htm>

Biological hazards discussed here include: blood-borne diseases (e.g., HIV and hepatitis A, B, and C), West Nile Virus, tick-borne diseases, and hantavirus.

## **Blood-Borne Diseases Such as HIV and Hepatitis A, B, and C**

Blood and certain body fluids can be infected with tiny organisms that can cause disease in humans. These micro-organisms are known as blood-borne pathogens. Those of most concern are the human immunodeficiency virus (HIV) and the hepatitis B and C viruses. HIV causes the disease AIDS (acquired immune deficiency syndrome), and the hepatitis B and hepatitis C viruses cause diseases with the same names.

Employees who work outdoors in areas where public access can't be controlled, and inside workers who work at places frequented by the public, sometimes find used needles and condoms in their work areas. These items—which could carry HIV and the hepatitis B and C viruses—are often thrown away in parks, streets, alleys, empty lots, public washrooms, and on beaches.

Most workers won't ever come into contact with blood and body fluids that can spread HIV and the hepatitis B and C viruses. Still, even if you work in a setting where contact with blood and body fluids is not expected, you should take some basic precautions, because it is possible to become infected from a single exposure incident—that is, harmful contact with infected blood or body fluids.

### **Transmission of HIV and the Hepatitis B and C Viruses**

HIV and hepatitis B and C viruses can all be spread by infected blood. They can also be spread by certain other infected body fluids. For infection to occur, viruses from infected blood and body fluids must enter the body. Whether the infection will occur depends on each individual's ability to fight infection. Human tissues and organs used for transplant can also transmit these viruses.

Some of the body fluids that spread these viruses include:

- Semen
- Vaginal secretions
- Amniotic fluid (fluid that the fetus lives in within the womb)
- Fluid around the heart
- Fluid in the lining of the lungs
- Fluid in the abdomen
- Fluid in joints
- Fluids surrounding the brain and spinal cord
- Breast milk (known to transmit only HIV)
- Saliva (known to transmit only hepatitis B)
- Any body fluid with visible blood

The following body fluids **do not** spread HIV or hepatitis B or C unless you can see blood in them:

- Tears
- Nasal secretions
- Sputum (coughed up from the lungs)
- Vomit
- Urine
- Sweat
- Feces



These body fluids, however, may spread other infections (e.g., feces can spread hepatitis A and sputum can spread tuberculosis), but they are not of concern in the spread of HIV and the hepatitis B and C viruses.

### Exposure to Infected Blood and Body Fluids at Work

For contact with infected blood and certain body fluids to pose a risk of infection, blood-borne viruses must have the opportunity to enter the body. Whether an infection occurs depends on the individual's ability to fight infection. Workers can be exposed to infected blood and body fluids at work in the following ways:

- By puncturing the skin with a sharp object contaminated with infected blood and body fluids (e.g., needles, scalpels, knives, razors, scissors, broken glass, and anything else that can pierce, puncture, or cut skin)
- By splashing infected blood and body fluids into the mucous membranes (the tissue lining of the eyes, nose, or mouth)
- By splashing infected blood and body fluids onto broken skin (e.g., fresh open cuts, nicks, wounds, skin abrasions, chapped or damaged skin, and skin with disease such as eczema and dermatitis)

Although HIV is considered fragile outside the human body, it is not known how long it can live on discarded needles and sharps.

Hepatitis B and C can pose much greater risk to workers than HIV because these viruses are more easily transmitted. The hepatitis B virus is also much harder—it can survive in a dried state on surfaces at room temperature for at least one week. There is no data on how long the hepatitis C virus can last in the environment, and this has not been established as a route of transmission.

### Protection Practices

- Recognize the common work-related risks, such as:
  - Cleaning hotel rooms
  - Cleaning bathrooms
  - Picking up litter (e.g., needles, condoms, and other sharp objects) from the ground, alleys, parking lots, and streets
- Follow your employer's or your company's safe work procedures.
- Ensure that waste of this nature is placed in specially marked containers.
- Wear gloves and a face mask.
- Make sure you cover cuts and scratches.

When exposed to infected or potentially infected blood or body fluids:

1. **Get first aid immediately.**

- If the mucous membranes of your eyes, nose, or mouth have been affected, flush them with lots of clean water at a sink or eyewash station.
- If there is a sharps injury, allow the wound to bleed freely. Then wash the area thoroughly with non-abrasive soap and water.
- If an area of broken skin is affected, wash the area thoroughly with non-abrasive soap and water.

2. **Report the incident.**

Report the incident as soon as possible to your supervisor and first-aid attendant or occupational health staff. There should not be significant delay in seeking medical attention.

3. **Seek medical attention immediately.**

Seek medical attention immediately—preferably within two hours—at the closest hospital emergency room or at a health care facility if there's no hospital emergency room in the vicinity. Immunizations or medications may be necessary. These may prevent infection or favourably alter the course of the disease if you do become infected. Blood tests should also be done at that time. You may need to see your family doctor within the next five days for follow-up, such as counselling and medications.

**For more information**

- WCB publication *HIV/AIDS and Hepatitis A, B and C: Preventing Exposure at Work*:  
[http://www.worksafebc.com/publications/Health\\_and\\_Safety\\_Information/by\\_topic/assets/pdf/hiv\\_aids.pdf](http://www.worksafebc.com/publications/Health_and_Safety_Information/by_topic/assets/pdf/hiv_aids.pdf)
- U.S. National Institute for Occupational Health and Safety has information on infectious blood-borne diseases:  
<http://www.cdc.gov/niosh/topics/bbp/>

**WCB regulations**

- Part 5 of the Occupational Health and Safety Regulation, governing exposure to biological hazards, including blood-borne diseases: <http://regulation.healthandsafetycentre.org/s/Part5.asp>
- Part 6 of the Occupational Health and Safety Regulation, governing exposure to biohazardous materials:  
<http://regulation.healthandsafetycentre.org/s/Part6.asp>

**West Nile Virus**

West Nile virus infection occurs when the virus is transmitted to humans, primarily by bites from mosquitoes. People infected with the West Nile Virus usually either show no symptoms at all, or develop West Nile Fever. West Nile Fever is a mild disease, like the flu, that typically lasts only a few days and is not believed to have any long-term effects. Severe cases of West Nile Virus infection, however, can result in one of the following:

- West Nile encephalitis, an inflammation of the brain
- West Nile meningitis, inflammation of the membrane around the brain
- West Nile meningoencephalitis, an inflammation of the brain and the membrane around it.

The signs and symptoms of these severe diseases may last several weeks and could result in permanent neurological effects.

**Protection Practices**

You can reduce or eliminate the risk of becoming infected with the West Nile Virus by taking preventive measures to minimize mosquito bites. One of the best ways to do this is to reduce or eliminate mosquito populations, and that is usually done by getting rid of sources of stagnant or standing water that serve as mosquito breeding grounds. Mosquitoes need only four days to breed in stagnant or standing pools of water.

If you have to work outside, there are several measures you can take to prevent mosquito bites:

- Cover as much of your skin as possible by wearing long-sleeved shirts, long pants, and socks. Wear light colours, since dark colours attract mosquitoes.
- Cover exposed areas of your skin with an insect repellent. According to the B.C. Centre for Disease Control, insect repellents containing DEET offer the best protection against mosquitoes. (The percentage of DEET in repellents should not exceed 30 percent for adults or 10 percent for children.) Make sure you follow the directions when using insect repellents and do not apply it to skin that is already cut, burned, or otherwise irritated.
- Apply insect repellent to the outside of your clothing, as well as to all exposed skin.
- Do not wear perfume or cologne, which may attract mosquitoes.
- Do not pick up dead birds with your bare hands. The birds may be carrying the virus.

Mosquitoes are most likely to swarm during the late evening and early morning hours, so take extra precautions at these times.

### For more information

- B.C. Centre for Disease Control: <http://www.bccdc.org/content.php?item=148&PHPSESSID=d5e0ab7c37ed93ce27a1a9e72de279a7>
- U.S. Center for Disease Control: <http://www.cdc.gov/ncidod/dvbid/westnile/index.htm>
- U.S. National Institute for Occupational Safety and Health: <http://www.cdc.gov/niosh/topics/westnile/>
- U.S. Department of Agriculture: <http://www.aphis.usda.gov/lpa/issues/wnv/wnv.html>

## Tick-Borne Diseases

If you are working in a grassy or wooded area, it is important to protect yourself from ticks. Two species of ticks in British Columbia can cause diseases in humans:

- The Rocky Mountain Wood Tick is found in the British Columbia interior dry belt from the U.S. border north to Williams Lake and east to Alberta. If these ticks remain on the body for several days, their bites can cause tick paralysis, which usually stops shortly after the tick has been removed. Symptoms start with numbness in the feet and legs, making walking or standing difficult. These ticks can also carry Rocky Mountain spotted fever, but the disease rarely occurs in Canada.
- The Western Black-legged Tick lives in vegetation in the warm, moist coastal areas of Vancouver Island and along the mainland from the U.S. border to Powell River. Its range extends eastward along the Fraser River to Hope and north to Boston Bar. The bite is often painful and may result in a slow-healing ulcer. In rare cases, some Western Black-legged Ticks carry bacteria that may cause Lyme disease, with symptoms such as a red skin rash, fever, headache, fatigue, sore throat, and swollen glands.

### Protection Practices

- Wear long pants and a long-sleeved shirt. Tuck pants into socks and shirt into pants. (Spraying insect repellent containing DEET on your pants may help repel ticks.)
- Avoid walking or resting in areas overgrown with vegetation.
- After working, examine your body and clothes closely for ticks.
- Remove ticks immediately when you find them.
- For more information on ticks, contact an entomologist at the B.C. Ministry of Agriculture and Food (toll free: 1 888 221-7141) or check the website <http://www.agf.gov.bc.ca/>.

## Hantavirus

Hantavirus infection is caused by a virus that is found in some rodents, especially deer mice. The virus is rarely transmitted to people; but when it is, it can cause severe illness—Hantavirus Pulmonary Syndrome (HPS)—and even death.

Although only deer mice have been found to carry the virus in British Columbia, other rodents should not be ruled out as potential carriers. The virus does not appear to cause illness in rodent hosts. Infected rodents shed the virus in saliva, urine, and feces and it is then spread to humans when particles of infected saliva, urine, or feces are inhaled. The virus may be inhaled during direct contact with the rodent, or from breathing airborne dust particles that are generated when rodent excreta are disturbed. The virus can be spread if infected materials contact broken skin or the membrane lining of the eyelids and the eyeball.

It is not known whether someone can become infected from a rodent bite or by eating or drinking food or water contaminated by rodents.

Many of the confirmed cases of Hantavirus Pulmonary Syndrome in British Columbia have been work related, and most of these cases have appeared to involve direct contact with mice or their droppings. Cases of hantavirus in the United States, Alberta, and British Columbia have been associated with activities such as:

- Sweeping out a barn and other ranch buildings
- Trapping and studying mice
- Using compressed air and dry sweeping to clean up wood waste in a sawmill
- Handling grain contaminated with mouse droppings and urine
- Entering a barn infested with mice
- Planting or harvesting field crops
- Occupying previously vacant dwellings
- Disturbing rodent-infested areas while hiking or camping
- Living in dwellings with a sizable indoor rodent population

## Protection Practices

The primary prevention strategy for minimizing worker exposure to hantavirus is to control rodent populations in and around the worksite. An effective rodent control program requires an integrated approach and includes:

- Ongoing inspections for rodents—ensuring the area is inspected by qualified people who can determine if active rodent control is required
- Sanitation—reducing the number of places, both inside the worksite and in the immediate vicinity, where rodents may feed or find shelter
- Rodent proofing—ensuring rodents cannot get into building spaces (by, for example, closing openings where rodents gain entry, installing barrier materials such as steel wool, fine mesh screens, mortar, and sheet metal)
- Rodent population reduction—reducing and controlling the population through the use of poison or traps.

## For more information

- B.C. Centre for Disease Control: <http://bccdc.org/topic.php?item=79>
- U.S. Occupational Safety and Health Administration: <http://www.osha.gov/SLTC/hantavirus/index.html>
- U.S. Center for Disease Control: <http://www.cdc.gov/ncidod/diseases/hanta/hps/index.htm>

## Teacher Assessment Tool—Observation Sheet

### Rating Scale

- 4—Exceeds expectations
- 3—Fully meets expectations
- 2—Meets expectations
- 1—Does not meet expectations

	Students' Names									
	1	2	3	4	5	6	7	8	9	10
• Contributed to conversation										
• Identified key points										
• Used specific examples from text										
• Offered material support to discussion										
• Connected material										
• Summarized material effectively										
• Assumed leadership role										
• Displayed active listening during group presentations										
• Helped include others in the discussion										
• Mediated controversy										
• Researched and assessed the potential effects of a range of health-related information										

## Group Presentation—Peer Assessment Tool

Assessment of Group Work	Rating
In both its preparation and presentation, the group:	
• Analysed factors that can affect the health of young workers	
• Evaluated the negative consequences and effects that can come from injury to young workers	
• Described how to protect themselves from the harm associated with each of these causes	
• Analysed practices associated with work-related risk reduction and injury prevention	

### Rating Scale

- 4—Exceeds expectations  
 3—Fully meets expectations  
 2—Meets expectations  
 1—Does not meet expectations

## Student Self-Assessment Checklist

Self-Assessment of Group Work	Personal Rating
I listened actively to my partners.	
I co-operated in identifying a contribution I could be responsible for.	
I worked efficiently and effectively to summarize material for contribution to the group.	
I compiled my information in an accessible and easy-to-use manner for our group's presentation.	
I gained understanding in our discussion.	
I supported my group's presentation while it was being delivered.	
I listened actively to other groups' presentations.	
I asked relevant and meaningful questions about other groups' presentations.	
I am resolved to practise informed safe work habits.	

### Rating Scale

- 4—Exceeds expectations  
 3—Fully meets expectations  
 2—Meets expectations  
 1—Does not meet expectations